PAUL REVERE and the TIME MACHINE BY A.W. BERNAL

SEE BACK COVER

AMAZING STORIES

MARCH
20c

BLACK WORLD

By A. R. STEBER

VAGABONDS of the VOID by PETER HORN

NOTE HOW LISTERINE REDUCED GERMS: The two drawings above illustrate height of range in germ reductions on mouth and throat surfaces in test cases before and after gargling Listerine Antiseptic. Fifteen minutes after gargling, germ reductions up to 96.7% were noted; and even one hour after, germs were still reduced as much as 80%.

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Actual tests conducted on all types of people in several industrial plants over 8 years revealed this astonishing truth: That those who gargled Listerine Antiseptic twice daily had fewer colds and milder colds than non-users, and fewer sore throats.

This impressive record is explained by Listerine Antiseptic's germ-killing action . . . its ability to kill threatening "secondary invaders" — the very types of germs that breed in the mouth and throat and are largely responsible, many authorities say, for the bothersome aspects of a cold.

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YOU CERTAINLY KNOW RADIO. MINE NEVER SOUNDED BETTER
THANKS. YOU SEE, I HAVE TAKEN N.R.I. TRAINING
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Washington, D. C.

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National Radio Institute, Washington, D. C.

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THIS BOOK has shown hundreds how to MAKE MORE MONEY

MARCH
1940

AMAZING STORIES

VOLUME 14
NUMBER 3

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Volume XIV
Number 3

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Name..... Age.....

Position..... Address.....

PERHAPS one of the most popular of the earlier stories published by the Ziff-Davis AMAZING STORIES was "The Blinding Ray" by A. R. Steber. It was voted by the readers as a tie for first position of the month, with Tofte's "Meteor Monsters." Since that time we've begged Steber for another yarn, but only learned that the far ways of the north and of Alaska had called, and Steber had gone. Now, however, he has returned, and the fruit of a whole year's work is "Black World," a two part novel, beginning in this issue, which your editors believe will rank alongside Stanley G. Weinbaum's "The Red Peri." In other words, it's *smash!* We think you'll agree.

FOR you readers who like to pick scientific flaws, there is a grand opportunity presented for just that in Richard O. Lewis' short story, "The Strange Voyage of Dr. Penwing." In fact, your editors expect a flood of letters about the theories in this yarn. Mr. Lewis has taken an old theory and dressed it up in a delightfully convincing new garb. The editors remain neutral as to the theories presented in the story, although we admit, we have plenty of pros and cons in our minds.

"Hello. Acme Robot Company? What's the trade-in value on a 1952 model Robot-Steno?"

DID you ever hear the story of how Paul Revere's famous ride was really the feat of another man? We don't say that it's true, and we don't say it isn't. But A. W. Bernal, has a lot of story based on this amusing old legend. We think you'll like "Paul Revere and the Time Machine." It's an unusual time-travel yarn.

FAR be it from us to point with alarm at science's latest trick of making apples stay put on trees. Orchard owners usually lose from two-third to nine-tenths of their entire crop because ripening apples break from their stems and rot from bruises caused by falling to the ground. A new chemical stem-toughener, two naphthalene compounds which are sprayed on the trees, has reduced the premature falling to a scant 2%—which is certainly very fine for business and, as we said, nothing we should take exception to.

But—we can't help feeling a bit sorry for all the kids who aren't ever going to hear the story of Sir Isaac Newton and the Apple! You remember, it was a falling apple that first "struck" him with the idea of Gravity—but who'll believe it in a few more years, when the scientists have got all the apples permanently suspended?

Oh, well, guess we should be glad they haven't gone ahead and suspended the Law of Gravitation, too!

LIKE Shakespeare's Hamlet, Prince of Denmark, Danes have ever been tall, spare of figure. Alas, no more is it true! In recent years they grow fat and short of breath.

In this way has it come to pass: Formerly the central heating systems so common in this country were a rarity in Denmark. During long, cold winters the poor Danes had to exercise and eat heavily to maintain necessary body heat. But now they have been blessed with hot-air furnaces and steam heat. *But they still eat heavily.*

And so, with excess food converted into fat instead of heat, the Danes are changing, and this time it's because of science instead of evolution.

A MAN was recently making a speech in a New York club, using a public address system.

(*Concluded on page* 38)

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James Dible

I owe a lot to COYNE . . . I secured a job after returning home wiring cranes for the —— Machine Co. Before going to COYNE I was clerking in a grocery store earning the usual clerk's wages. I was in doubt about quitting my job but I have **tripled** the cost of the entire course...in the first ten months. The school is everything you say it is and more. I was completely satisfied. Thanking you for your kind cooperation while at school and since returning home.—Jack E. Stroup

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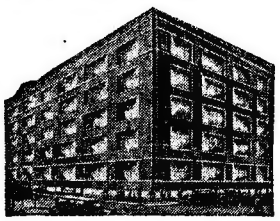

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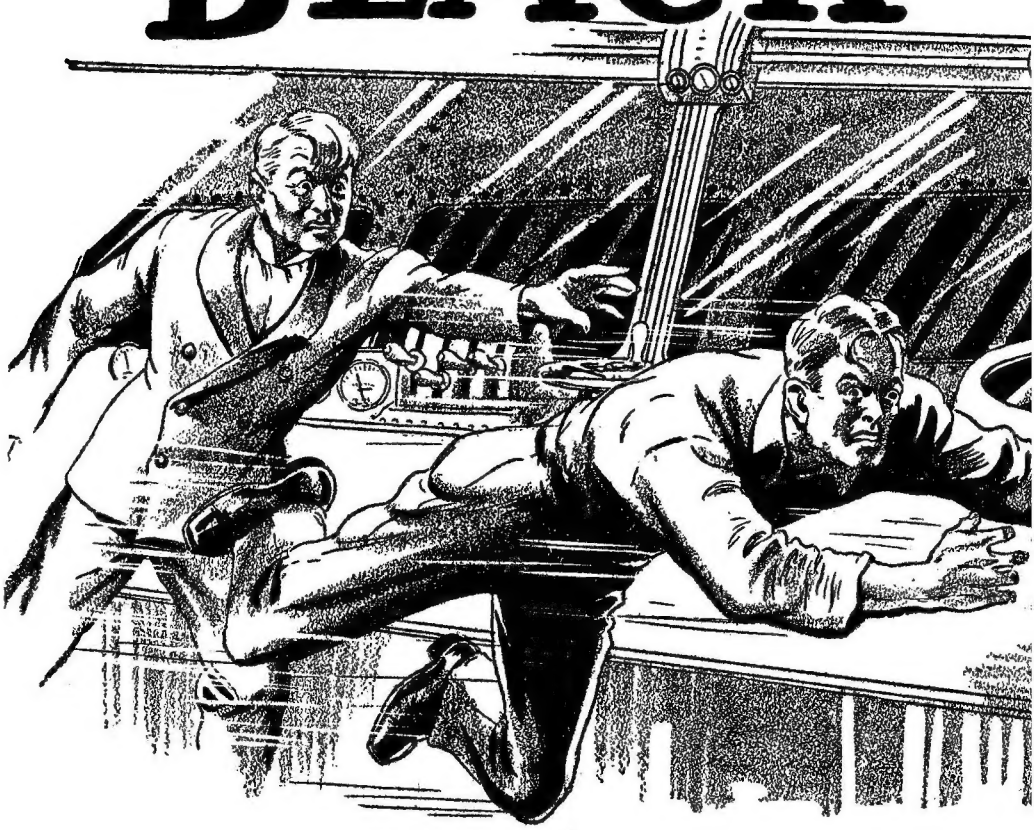

A Stellar Patrolman's duty is plain, but when an incredible mystery engulfs the whole solar system, even the path of duty becomes muddled

By A. R. STEBER

"PERFECT! Absolutely perfect!" breathed John Carver to himself. "What a girl!" Lolling luxuriously in the filtered sunshine of the observation deck of the luxury liner *Josephine,* he glanced covertly out of the corner of his eye at the slim, auburn-haired girl relaxing in the deck chair beside him. Her eyes were closed and soft lashes clung to her rounded cheeks. Noting this fact, he swung his head around and stared at her features in undisguised admiration, as he had done so many times during the eight days of the voyage already.

The face tilted toward him was clear-cut, determined. Not ravishing or doll-like in beauty, but distinctly good looking, and possessing an amazing amount of personality. There was something more than just appeal there; she had character, purpose. There was even a tinge of bold recklessness in the tilt

As John Carver hurtled forward, the pirate reversed his gun butt

Ina Malden
Interplanetary Sportswoman

of her nose, the obliqueness of her chin.

For a moment his eyes roved over her trim figure, clothed now in a very mannish suit, as far as cut and style were concerned. But there the likeness ended. She combined a figure full of charm with a healthy, athletic build. Instinctively Carver knew she could keep up with any man in anything that demanded physical endurance and strength, were it to climb the steep mountains of the moon, or trek across the deserts of Mars, or even stroke oar on an Earth college shell. And yet, she possessed soft feminity.

Carver's eyes returned to her face, dwelt for a moment on the freckles on her determined nose. He grinned a bit inwardly as he contemplated them. Somehow he liked something about those freckles. They seemed such an important part of the aura of self-reliance and character surrounding her. He was still smiling slightly when her lids shot up, revealing warm amber eyes looking straight into his.

"Caught you again," she remarked calmly. "And if I remember rightly, curiosity once killed a certain cat. . . . "

He grinned openly now that he had been caught in the act.

"But I'm not a cat," he corrected her.

"Then what are you?"

"Would you really like to know?"

Her lips broke into an answering smile. "You might as well talk with your lips as with your eyes," she suggested.

He started and flushed. "My eyes? What have they been saying?"

She eyed his trim uniform deliberately for a moment. "A lot of things quite out of keeping with that uniform of yours."

"I never say anything I don't mean," he put in slyly.

It was her turn to show confusion, but only for an instant. "Start talking," she commanded. "Let me be the cat for awhile."

Grinning, he leaned back in his chair and stared out into the starry blackness of space.

"Well," he began, "since you've already noticed the uniform, you know I'm a member of the Stellar Patrol . . . "

"I thought Stellar Patrolmen stuck to their own ships?" she interrupted.

"They do."

"But . . . "

"Special assignment," he informed her briefly. "But to get on, my name's John Carver . . . say, what's yours?"

"An—Ina Malden."

He glanced at her. "That isn't what you started to say."

She looked at him levelly. "One of my faults," she informed him coolly. "My tongue is out of step with my brain, and very often transposes words. Instead of saying Ina, it started to say Ani."

"Oh. Well, in addition to having a

simple name, I'm tall, handsome, twenty-six years old, and I've never been in love. That about sums it up."

"Braggart," she said. "The way you stare at me, what would you do if a really beautiful woman came along?"

"Nothing. I'm looking for a bit more than beauty."

"And . . . ?"

"You've got a lot of it," he admitted.

She laughed heartily. "Is this a proposal?"

He sat erect. "Might be a good idea at that."

"Too bad," she observed. "Stellar Patrolmen can't get married."

"I'm through my term in seventeen months."

"Still too bad. In seventeen months I won't be accepting proposals . . . " her voice took on a strange sombre note, " . . . or ever," she finished. Her amber eyes, moody now, stared out into space.

"Why?" He studied her face.

"Curiosity once killed . . . " The sudden sharpness of her tone sent him back in his seat.

"Okay," he sighed, relaxing once more. "But now that we've broken the ice, how about going to the mid-voyage dance with me tonight? I might as well make the most of the opportunities offered by this assignment."

She nodded with sudden interest. "Why not?" she returned his question with her own. "Your suggestion fits me too, m a y b e better than it does you . . . " she halted abruptly and extended her hand. "Come on," she cried with sudden, reckless, enforced gaiety, "let's take a little stroll — toward the bar, and celebrate our little vacation with a cocktail. And then, let's make the rest of the voyage interesting."

For a moment Carver stared at her, wondering, then he grinned. "You're on," he said enthusiastically, leaping to his feet to grab her hand, "And how!"

John Carver
Stellar Patrolman

THE mid-voyage dance had been a huge success, as far as Carver was concerned, and he had no reason to believe it had proven otherwise for Ina Malden. Just a moment ago, at her stateroom door, she'd been smiling, and had promised she'd see him again.

But if he'd been curious before, now he was positively itching with puzzlement. For all his adroit questioning, she'd remained a mystery. She was Ina Malden, sportswoman, who spent most of her time hunting and adventuring on other worlds, or crossing the void between them. More than that he'd been unable to worm from her.

Frowning in concentrated thought, Carver stepped into his own stateroom and closed the door behind him.

An elderly, but vigorous-looking man peered from behind the table where he had been intent on a spread-out map.

His seamed, space-tanned face broke into a smile.

"Well, how did you enjoy the dance?"

Carver grunted. "Great! But that girl—she's got me wondering. There's something behind her that isn't all it seems."

"There's something mysterious about any girl, as good looking as she, tramping the void alone," ventured the older man. "But I'd advise you to quit worrying about it. Remember, you are now part of the secret Peter Caldwell expedition to Pluto. . . . "

Carver wheeled in startled surprise from the chair on which he'd just hung his uniform coat with meticulous care. *"Pluto!"* he shot out. "Is *that* where we're bound, Professor?"

Caldwell smiled. "Yes. I've decided I might as well let you in on the secret now, because certain developments have turned up which alter our plans a bit, and I'll need your co-operation to carry them out."

Carver drew up a chair and sat down, straddling it, with arms and chin resting on its carved back. "Spill it," he said interestedly, "I'm all ears."

For a moment Caldwell studied the map beneath his fingers, then looked up at Carver with a quizzical expression.

"When I asked the Mellon Institute for the backing to make this trip, they were doubtful of its value. But when I told them what could come of success—well, it put a new aspect on the whole thing. It meant absolute secrecy, secrecy that made a large, publicized expedition impossible. In short, it became imperative that no hint of any expedition at all should leak out. Any word of the exact nature of what I expect to find on Pluto would mean a concerted rush on the part of every planet government, every adventurer, and certainly every scoundrel, in the solar system, to get possession of . . . of *it*.

"And so, I was commissioned to go alone, to return only when my work is completed and safeguarded. Therefore, we devised this plan, with one experienced and trustworthy Stellar Patrolman as the balance of my 'expedition'. I'll do the research, you'll do the work —and if any, the fighting. Simple, isn't it?"

CARVER'S eyes shone. "Pluto!" he breathed. "The Black World! The only planet with no port of call. I've heard tales of that world—stories of the Stellar Patrol's exploration parties . . . "

"They haven't been exaggerated," put in the scientist. "There's plenty of danger—from things science has been very careful about examining. The results of these examinations and explorations have been a firm decision to proceed very carefully in exploitation. In fact, Pluto is a forbidden world, except to advanced scientific study, and rigid exploration by the Stellar Patrol.

"However, recently no ships have turned outward toward Pluto. In a hundred years she will be beyond reach, and will remain so for long centuries, which perhaps is best. She is an alien world. Still, there is something on Pluto which we *must* have, and Earth is the 'we' in question.

"It isn't any secret," Caldwell went on grimly, "—to a Stellar Patrolman at least — that Earth hasn't as many friendly interstellar neighbors as is generally thought. Power is hers, yes, and therefore respect; but no love is lost, for instance by Mars and Venus."

"Especially Venus," Carver agreed.

Caldwell went on. "Therefore, ostensibly, I am a Mellon scientist, on a sabbatical trip, and you are a guardsman on a diplomatic mission. In reality, we are on an urgent mission for

the Earth government."

"And what are those important developments that make you tell me all this in advance of your initial plans?" questioned Carver curiously.

"There are several," admitted Caldwell. "First, trouble on Callisto. We'll have to change our original plans of proceeding to that world, and then dropping off into nowhere in our own ship. Instead, we'll do it in midspace, between Titan and Callisto. There's revolt on Callisto, and there is every chance we might be detained, even held prisoner, our ship interned for the duration of the revolt. Therefore, we pick up our cruiser at Titan, carry it aboard the *Josephine* to a point midway between Titan and Callisto, then take off on our own.

"Second, the *Josephine* carries bullion; platinum to bolster the government of Callisto, and there is the chance of being held up in space by rebel warships.

"Third, there may have been a leak somewhere, and Professor Peter Caldwell and Stellar Patrolman John Carver will have to literally drop from existence to prevent all chance of pursuit. Not even our own secret service knows where we are going. In fact, only two men besides ourselves know—the president of the United States, and the head of the Mellon Institute."

"Phew!" breathed Carver. "Whatever we're after, it *must* be important!"

"It is," agreed Caldwell seriously. "More than you can possibly realize."

He rose to his feet and folded his map. "And now, let's get to bed."

Carver nodded, loosed a little laugh. "Okay, but with all these mysteries, I don't think my mind will let me get much sleep."

He stared at Caldwell's back as the older man passed through the door joining their two compartments, and his smile faded. "Yeah," he muttered to himself, sitting down on the bed and beginning to unlace his uniform boots. Before his eyes grew the vision of a strange black world, but superimposed over it was a pair of glowing, enigmatic amber eyes.

"Yeah," he repeated. "Pluto's a strange world, but it's got nothing on *her*, for mystery! . . . "

CHAPTER II

The Mystery Pirate

JOHN CARVER'S face was thoughtful as he stared across the table in the small cafe in the native quarter of New Denver, on Titan. Ina Malden sipped her cocktail with a preoccupied air, and she seemed listening idly to the roistering arguments of two rather bedraggled spacemen at the bar. But Carver paid no attention to them. His thoughts were fixed on her. For a moment he rolled the bottom edge of his glass on the tablecloth, making a small ringed indentation, then he spoke.

"You know, Ina," he said. "I've been with you eight days, in space, and now one here on Titan — and I don't know more than your name. If women are supposed to be unable to keep secrets, they certainly got that reputation without the aid of *your* kind." His tone became suggestful. "We've still the trip to Callisto; maybe you'll relent and tell . . . "

Her amber eyes suddenly focused on his, and she set her glass down.

"I'm not going to Callisto," she announced calmly. "Today, now, is goodbye."

His glass tipped abruptly, a bit of liquid still remaining in it staining the tablecloth. Her slim, strongly tanned fingers reached out to right it.

"Not going!" he exclaimed. "Why?

You've reserved passage s t r a i g h t through."

Her eyelids lifted a bit. "Oh, so you've been checking up on me . . . "

He grinned a bit shamefacedly, then sobered instantly. "Why not? I like to know how much fun I have in store for me . . . and now you're cutting it short. Why?"

"Are guardsmen always so full of curiosity?" she asked.

"No. But this is . . . different."

Her hand lifted from the tablecloth and she placed her fingers across his.

"It mustn't be," she said swiftly. "You've got to realize it. Because I really mean it when I say this is goodbye. Maybe you do deserve an explanation. You've been nice—given me a last good time. But now it's over, and I can't explain. There just isn't . . . "

His own hand turned under hers; his fingers held hers tightly.

"Why?" he insisted. "You talk as if you were going to your own funeral."

For a moment she deliberated. Then: "Well, there's a revolt on Callisto. It's dangerous to go there. So I'm not going. I'll do my hunting on Titan."

"You're a liar," he said frankly. "The Ina Malden of the past nine days is the kind who would make it a special point to go to Callisto now . . . "

"All right," she admitted readily. "I'm a liar. But I'm not going, and you are, and we'll never meet again. It's just closed—finished."

"No," he denied. "It isn't finished. In seventeen months I'm looking you up again. And I want to know where . . . I won't let you go until you tell me."

She started to withdraw her hand, but he prevented it. She continued to pull insistently, her amber eyes burning into his. There was no anger in them, just a steadiness of purpose that baffled him. At a loss he loosed his grip and permitted the fingers to slip away from him.

"In seventeen months," she said, "I don't know where I'll be. I . . . "

A SUDDEN loudness in the voice of one of the arguing spacemen at the bar halted her words. She turned to listen. Puzzled, Carver listened also.

"I tell you, Rand," one of the men said in angry tones. "I seen her. Just as plain as the rings of Saturn. A silver-white ship, faster'n any you ever saw, just a million miles off'n Titan. It was the mystery pirate. I'll gamble my own ore tub on it!"

"Yer screwy, Hanson," snorted the other. "It couldn't be possible. The latest radio from Venus, way to hell-angone 'round the other side of the sun, reported the mystery pirate holding up the Mercury-Venus express only eleven days ago. To get here, that ship'd have to travel twice as fast as the fastest Patrol ship in the solar system. It just can't be done. You been drinkin' too much of that danged Callisto rot-gut."

"An' how do you know that mystery pirate *ain't* twice as fast as a Patrol?" challenged Hanson. "How'n blazes is it she gets away so easy every time?"

"She *is* fast," admitted Rand, "but not *that* fast. Why you poor fool, don't you know yerself no rocket tube lining'll stand up under the blasts it'd take to build that kind'v speed? Hey, bartender, set 'em up again, will yuh? I might as well get drunk too!"

Carver was aware of Ina's cool voice. "They say the mystery pirate is a girl," she observed.

He shook his head. "Just a fairy story," he said. "The ship is also supposed to be the invention of someone by the name of Mitchell, who used to be something of a scientist on Earth, maybe twenty years ago. He was convicted of something or other, I never

did bother to find out what, and sent to the Lunar Penal colony. But he escaped. Ever since, he's been among the missing. When the mystery pirate appeared three years ago, the rumor grew that it was Mitchell. But I doubt that very much. The records of the Stellar Patrol say he died during his escape."

She nodded a moment, lifted her glass to drain it, then rose to her feet.

"The *Josephine* leaves in an hour," she said. "We'd better be going."

He rose also, paid the waiter who approached, then followed her from the cafe. Outside he was silent as they walked through the streets toward the space-port. He was baffled.

It was night time on Titan, as much as it ever darkens there, and they walked in darkness to the space-port. At the field, she halted.

"Well," she said calmly. "Goodbye, and good luck."

For an instant he faced her, then abruptly he seized her in his arms and kissed her on the lips. She didn't struggle, but when he released her, her hand came up sharply and smacked against his cheek with stinging force.

Her eyes blazed an angry amber through the darkness, and her voice became chilled steel.

"You're just like all the rest," she said in tones dripping contempt. "You take what you want by force. There are no *honest* men!" Abruptly she was gone, melting into the darkness.

"Ina!" he called once, stepping forward. Then he halted, bewildered.

"Don't be a fool," he addressed himself, "you've got a job to do. And that girl's a mystery it'll take time to solve—seventeen months from now, if you can find her!"

TITAN was a dull orange ball behind the *Josephine,* plunging once more through space. John Carver lolled in his chair on the sun-deck, staring out at the stars. Beside him Professor Caldwell calmly read a book, turning pages with a methodical regularity. Attracted by the flip of pages, Carver leaned over to stare at the contents. Then he grunted.

"Mathematics! How can you *read* that stuff?"

Suddenly he felt his chair tip and slide beneath him. Awkwardly he tumbled from it, slid along the floor. Attempting to regain his footing he became aware that he was not the only one in difficulty. The ship had swerved without warning, an almost unprecedented thing in space.

"What in blazes!" exclaimed Carver, regaining his footing to stare out into space in surprise. Half the heavens were obscured by the flare of rocket flames, and the balance was empty as before. Then the flames vanished, and simultaneously the alarm bell began ringing through the ship.

Off in space, nearing rapidly, was a shining silver object, long, streamlined, graceful. And no rocket flames belched from its rear.

"The mystery pirate!" swore Carver in amazement. "That drunken spaceman was right. The ship *is* here!"

Caldwell was at his side now, still holding his book. "What's here?" he gasped.

"Pirates!" returned Carver grimly. "They're after the *Josephine*. And we'll never shake them. That ship is something new; it can fly circles around us."

"Bad!" muttered the scientist. "What'll we do?"

Carver shrugged. "Fight," he said.

"No!" Caldwell shot at him sharply. "We do nothing of the kind! We keep quiet and hope we get out of this. Your job is fighting, but for only one purpose. We have nothing to do with the *Josephine,* or with pirates."

"But," protested Carver. "I'm a Stellar Patrolman, and my oath . . . "

" . . . is to protect Earth interests to the fullest of your ability," finished Caldwell. "And that leaves you no alternative. Our mission is vastly more important than any pirates in space."

Carver nodded. "Okay, but it's going to be tough to stand by and let a crook get away with it."

He turned once more to watch the gleaming ship, now abreast of them and drawing in closer.

"What's the matter with our rockets?" Carver muttered. "Is the captain just going to let him come alongside and help him make contact?"

An officer with the bars of a lieutenant on his shoulder came rapidly toward them and addressed Carver. "Commander Taylor would like to see you in the main control room, sir," he said.

Caldwell placed an arm on Carver's wrist, then withdrew it slowly.

"I'll come," nodded Carver.

"Right," said the lieutenant, wheeling away.

"We'll have to do it," Carver acknowledged the expression in Caldwell's eyes. "We can explain our stand and it's best to get him straight right now. Besides, I'm curious about those rockets; this ship ought to be running, at least."

"Let's go," said Caldwell nervously. "We'll be conspicuous here. You, a patrolman, doing nothing, would be hard to explain."

HE led the way forward, and in a few moments they were in the control room. Several white-faced, determined looking officers were grouped around the Commander. That individual came forward as Carver appeared.

"What chances are there of contacting a Patrol ship?" he asked anxiously. "We're helpless. Some sort of electrical interference has shorted everything aboard. We can't fire a rocket . . . "

Carver looked speculatively at the instrument board. "If that's so, your radio is useless. What else . . . ?"

"Your own ship, in the escape chamber—" suggested Commander Taylor swiftly. "I don't know what your mission is, and it's none of my business; but you could get away on the lee side and maneuver down our shadow. Once clear of the electrical beam, you could radio for help, then attack. You've got a regulation pursuit ship there, fully armed—"

"Can't do it, Commander," said Carver. "My mission is too important to risk its failure. My ship is armed, yes, but we still don't know what the mystery pirate has, and if this electric interference beam is any indication—No, our only chance is to lie quiet and radio the alarm after they've gone . . . "

"After . . . !" blurted the commander. "Great gods of Mars, man, this isn't ordinary piracy. We've got twelve million in platinum aboard. It means the difference between victory and defeat for the Callisto government. I've *got* to get it through!"

"Commander Taylor," Caldwell broke in abruptly, "in reality, I am in command so far as Patrolman Carver is concerned. It is absolutely impossible for us to interfere. Our mission is vastly more important than the platinum for Callisto. We *must* adhere to our plans. It is by order of the President of America, who is acting under the World Pact, to which England is a party. This is an English ship. Therefore, the authority also applies to you."

Taylor stared a moment, then turned away with a sigh. "That is sufficient," he said quietly. "I will do my best to protect your mission's secrecy and fulfillment. But I warn you, we intend to

fight if we get the least opening. I have my duty too."

"Accepted," said Caldwell. "But in the light of that, I'm afraid we'll have to make our escape instantly. I assure you we'll radio the alarm immediately we clear the electrical beam. Come on, Carver, we'll have to get out . . . "

A sudden gentle jar shook the *Josephine* and Taylor turned to the observation port.

"Too late for that," he pointed at the white bulk looming just outside. "They are in full sight of the escape chamber. You'll just have to keep in the background and wait your chance. So far as past performance warrants the belief, this pirate is not given to open violence, and you'll be reasonably safe."

A hollow, metallic voice boomed dully through the ship. "Open the locks," came a muffled order. "We are coming aboard."

"Contact phones!" marveled Carver. "That ship *is* equipped. And a much better type contact speaker than even the best Patrol boats have."

"Open the locks," said Taylor heavily. "But be ready with the machine guns and gas bombs. Close the seaports leading to the passenger decks and the engine rooms. We'll make no attempts unless we get a chance to grab a bunch of them for hostages. . . .

"Here, Carver, get into this pair of overalls. Your uniform is too conspicuous. You can be an engineer, up here to report the failure of the rocket motors."

"Thanks, Commander," said Carver. "Your government will hear of this . . . "

For an instant the *Josephine's* commander grinned. "If I lose the platinum, I'll hear about it, all right! So maybe I'm lucky you're aboard to furnish me with something of an alibi in the way of duty. And now, you'd both better get back out of the way and remain quiet."

CALDWELL stepped back against a wall and stood silently while Carver struggled into the overalls beside him.

"Lock's open," said a lieutenant. "Boarding party coming through."

Taylor strode to the control room door and flung it wide. For an instant he stared down the corridor outside, then walked slowly forward, stopping only as a space-suited figure came into view at the other end.

A half dozen other figures followed rapidly, armed with efficient looking machine guns.

"Don't put up a fight," came the hollow-booming voice from the contact speaker. "We'll break contact if you do, and let your air escape. Our men are suited and we hold all the cards. Behave yourselves and nobody will be hurt."

Taylor turned back to the control room, shrugging his shoulders. "Make no resistance," he ordered. "They've got us helpless."

He faced the first of the advancing space-suited figures.

"Greetings, Commander Taylor," came a tiny microphonic voice from the leader. "You've got a shipment aboard we'd appreciate appropriating. Please be kind enough to have one of your men lead mine to the store room. It won't take long to move it to my ship, and then you can be on your way."

The voice was high pitched, sounding shrilly in the silence of the control room.

"The brass of the fellow!" muttered an officer who subsided immediately as one of the pirates turned toward him.

Carver stood silently in the background, watching with Caldwell as the pirates went coolly about the task of transferring the platinum from the

Josephine to their own ship. He peered intently through the face plate of the leader, but could discern no details of the features, except that the man wore a mask, a strip of black cloth across the eyes, perforated for vision.

In less than fifteen minutes the transfer of the platinum had been effected. The leader ordered several of the pirates to withdraw, then pushed past Taylor into the control room.

"Professor Caldwell," came the tinny microphonic voice, "will you please come with me?"

Carver stiffened in utter surprise, stood for a moment gazing at Caldwell and the pirate.

Taylor stepped forward. "What's the meaning of this?" he demanded angrily. "Professor Caldwell is a passenger aboard this ship."

A metal-clad arm leveled a gun on the commander's chest.

"One side, Commander," said the leader smoothly. "Professor Caldwell will continue his voyage aboard the *Starlight*."

Taylor backed away, his face white with anger and futility.

Imperiously the pirate's gun waved. Caldwell advanced reluctantly. He glanced helplessly at Carver.

The patrolman tensed his muscles, preparing for a desperate leap. Instantly the gun roved around toward him. He stiffened rigidly.

"I wouldn't if I were you," came the voice.

Then, without warning, a roar filled the control room as a machine gun chattered. Down the corridor a scream came from one of the guards, who toppled instantly.

"Close the lock!" roared Taylor, swinging the gun he had snatched from its concealment behind an instrument bank in an arc toward the pirate leader.

Crack!

The gun in the pirate's hand spoke sharply. Taylor slumped to the floor, oddly limp. The machine gun ceased its roar. A man leaped toward the controls to close the lock. The gun swung toward him.

At the same instant Carver's plunging body launched forward. But the pirate was unbelievably quick, and in the instant his form hurtled through the air in a flying tackle, the man reversed his gun and the butt of it crashed down on Carver's skull with stunning force.

With the blow he saw a pair of blazing amber eyes inside the darkness of the helmet, and even before he lapsed into blackness, he knew the truth.

"Y . . . you . . ." he strove to say, his tongue thick with pain, then everything went blank.

CHAPTER III

The Black World

"COME on! Snap out of it, Mister!" Carver heard the words penetrating a haze of pain shooting through his head. Then with the shock of cold water in his face, he sputtered and struggled to a sitting position. He found himself on the floor of the control room of the *Josephine*. Bending over him was the form of a junior officer, his face grim.

"Pull yourself together, man," urged the officer. "You've got work to do."

Realization flooded over Carver. He leaped to his feet, reeling a bit unsteadily as his head whirled with a beating throb of agony.

"Professor Caldwell!" he exclaimed. "Is he . . . ?"

The junior officer nodded. "Yes. The pirates took him aboard their ship. I guess now your duty is clear. Your man, and our platinum shipment, both, are aboard the pirate."

Carver's eyes fell on the body of Commander Taylor, lying in a huddled heap on the floor. "Dead!" he exclaimed. "So the mystery pirate has killed at last!" For a moment he was silent, collecting his whirling senses. Then:

"My ship!" he commanded, suddenly calm and purposeful. "Lead me to the lock." He clenched his fists. "I'm going after them. When I'm gone, radio Patrol Headquarters about this attack. Tell them what's happened, but whatever you do, don't mention that I am in pursuit—headquarters will know that, and we don't want the pirate to suspect."

The junior officer shook his head. "No go," he said curtly. "The pirate smashed the radio. You'll have to do your own radioing."

Carver, already wheeling to the doorway, halted in his tracks, vexation flooding his face. "Damn!" he muttered.

"What's the matter? Don't tell me a patrol ship has no radio?"

"Certainly it has," snapped Carver. "But *I* can't signal. The pirate will get the message, realize we have a pursuit ship aboard. Once she knows that, I'll have no chance to keep her in range of my detectors. She's got twice the speed of any ship in space—got here from the other side of the sun in a week. She could lose me with ease. My only chance now is to play a lone hand."

The junior office looked serious, then abruptly he extended a hand. "Go to it, Mister," he said earnestly. "I don't envy you your job. I'll do my part by taking the *Josephine* at full speed back to Titan, and send in the alarm from there. We can't go to Callisto now. If they know the platinum is gone, hell will break loose."

Carver grinned his thanks. "Okay. And now, let's get out of here."

THE tremendous crushing force of five gravities acceleration pressed Carver back in his cushioned seat, as he drove the tiny patrol pursuit ship across the void in the direction indicated by the detector needle on the control panel. It was hours later. The space before him was empty of any sign of a ship, were it possible to detect it visually against the powdered net of stars that made the heavens a glowing glory. Straight into the myriad stars of the Milky Way the trail led, outward from the sun.

But inexorably the indicator needle clung to the nearest metallic body, which could only be the pirate ship, since the *Josephine* was too far behind now to register her presence.

Hour after hour he drove on. As time passed, he saw with a sinking heart that his detector needle was beginning to waver. It was losing contact by reason of the increasing distance of the pirate ship. He dropped his eyes anxiously to the course chart he'd been carefully working out, and noted the short arc formed by a tiny ink line on the paper. A glance at the declination compass showed only a slight deviation from the mean.

"Another two hours . . . " he muttered anxiously. "Just two more hours —and I'll be able to chart that curve ahead, and find out where it lands."

Ignoring the terrific strain on the tiny pursuit ship, he depressed the firing levers slowly down to their limit. Then, with the whole vessel thrumming like a violin string to the pounding of the rockets, he held on grimly. These pursuit ships were built both like a safe and like a watch. They'd take a pounding like this for an hour or two, before there was any great danger of collapse. She'd *have* to take it!

But ninety minutes later the detector needle veered slowly to the right,

then suddenly spun erratically. He watched it anxiously, but it refused again to halt its wild gyrations. The pirate ship was out of detector range!

Carver released the pressure on the rocket levers and the pursuit ship suddenly ceased its vibration. Silence fell on the control room as she coasted, no longer accelerating. For fifteen minutes he worked over the almost hopelessly inadequate ink line on the chart, computing its arc and its declination. As he neared a result in his calculations, he began to frown in puzzlement. There was no destination at the end of that course—no destination, except—

"Pluto!" he yelled suddenly, the echoes of his shout deafening him in the tiny control room. "Pluto, by Heaven! It's the only place they could be going—unless they change their course. And there's no reason to do that. They can't dream they are being followed. Without a detector, they couldn't . . . "

"Without a detector?" mocked a quiet, questioning voice from behind him. "Are you inferring patrol ships are the only ships with detectors?"

STUNNED by the unexpectedness of the sound of a human voice, Carver turned from the control chart to stare helplessly at the figure of a man, tall, dark, saturnine, standing in the doorway to the control room. He was distinctly handsome, in a typical Martian way, and Carver recognized him instantly for what he was. His Earth blood accounted for his devilish handsomeness and his athletic build. His Martian precedents accounted for his height and his complexion. And in his eyes shone the characteristic intelligence of the Martian. In his hand he held a gun, aimed directly at Carver's heart.

"Who are you?" Carver exploded finally, overcoming the shock of surprise. "How'd you get aboard this ship?"

The Martian grinned. "Very simple. First, to keep your questions straight, my name is Magra. Franco Magra. I am attached to the company of individuals aboard the ship known to you as the 'mystery pirate.' But before I go further, I want to correct that last designation. We are *not* pirates. We are only taking a small portion of what really belongs to us, or rather, to one of our company."

"If it belongs to you, why do you have to take it?" asked Carver levelly.

The Martian's eyes flamed. "Because, my dear fellow, justice does not always function for the just!"

"And so, in the name of justice, you steal, and kill?"

"Perhaps we should kill more — I would find my task much simpler. But we are agreed not to kill, and we respect the wishes of our leader, although personally my scruples are—well, less considerate shall we say? — and perhaps now I will agree less to agree. It is unfortunate that he was forced to kill the captain of the *Josephine,* but there was no other way. The captain invited certain death by his action, and besides, killed one of our men."

"He?" questioned Carver shrewdly.

The Martian looked blank for an instant, then suddenly he comprehended, and snarled.

"You know too much, Mr. Carver! Yes, I know your name; know all about you and Caldwell, and your mission—more than you do. But you'll never get back to reveal what you've discovered. If I've got anything to say, there'll be a few more—ah—executions in the future.

"And now, just unbuckle that belt and toss those guns over here."

Carver complied slowly. "You haven't answered my second question,"

he reminded as he dropped the belt and guns at Magra's feet.

"Simple," boasted the Martian. "Our detectors—the detectors you thought only patrol ships had—showed you were following us. So I just dropped off to the side in a one man boat and let you catch up to me. Then I cut in behind, anchored to your airlock, and came aboard."

"I see," said Carver. "That must have been when my detector needle got doubtful and wavered a bit."

"Yes, I suppose that must have happened," agreed Magra. "Getting aboard was easy. You had the ship humming so much you couldn't hear the lock. I even had time to take off my space suit."

Carver nodded. "A very neat job," he commented. "But what now?"

Magra grinned again. "You've got the course all plotted out. Just keep right on to Pluto. I'll enjoy relaxing while you chauffeur me there. As to what then, I don't know. The rest is in 'her' hands."

He made himself comfortable at the rear of the control room, keeping his gun in ready reach.

FAR behind, the sun was a tiny gleaming disc, barely discernible as being any more than just another star in the black canopy of space. Ahead loomed the now close planet of mystery — Pluto, the wandering world of the solar system.* Carver began to brake the tiny ship as the globe, now distinctly below rather than ahead, came within landing range.

During the long voyage, Franco Magra had not relaxed his vigilance, and Carver had no desire to do other than exactly what he was doing, since Pluto was his goal anyway. Caldwell would be there, and for the moment, the fact that he was Magra's prisoner didn't matter.

While Magra slept, he heard the faint broadcast from Titan, telling of the abduction of Caldwell. *That* would stir up a hornet's nest, back on Earth, but nothing would come of it. None would dream that the incredibly remote Pluto would be the destination of the mystery pirate.

Magra was beside him now, staring at the instruments, inspecting the world looming like a great black globe below them. Far to the north rose a vague white range of mountains, looking like a row of serrated teeth on a black face.

"Those are the Ice Mountains," said Magra, pointing. "And the large plain just this side of them is the Dust Desert. Nice place, that. Dust as fine as powder, and soft. Hell to walk in. Man can't make more than five or ten miles at one stretch."

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* Of all the worlds of the solar system, perhaps the strangest is Pluto. The outermost world of the system, the ninth planet, and last to be discovered, very little is really known of her that can be definitely put down on paper as fact. Some of the observations that have been made reveal the following:

Her distance from the earth is now forty-one astronomical units. Add that all up and the figure is 3,813,000,000 miles, which, although in interstellar space a puny distance, is a lot of miles for a planet to be from its parent.

Pluto's mass is now known to be smaller than at first believed, and scientists have tentatively placed it at about that of Earth. In many respects, the planet is like Earth. But only in mass, size, diameter, etc. Her distance from the sun makes her an utterly different world otherwise. Her orbit is elliptical, its plane inclined to that of the major planets at about 31 degrees, 21 minutes. The size of her orbit, is roughly, 433 astronomical units, or 433 times 93 million miles. We are referring to the long diameter here. The time required to travel around this tremendous orbit is staggering to imagine. It takes 3,200 years. Imagine a year 32 centuries long!

We will be able to view her through telescopes for only one hundred years more, when she will pass beyond sight, in empty space at the far end of her orbit. For 3,000 years she will be gone, and then she will return.—Ed.

Carver grunted. "Where are we headed for?"

"Just across the desert, to the base of the Ice Mountains. We've got some nice caves there, all fully equipped, and impossible to locate unless you know where you are going."

"Caves? In ice?" questioned Carver. "Not quite practical, is it?"

Magra smiled. "That shows how much is known of Pluto. Those mountains aren't ice. They were misnamed from their appearance. They are white granite, and tougher granite you never saw. I know, because I had to blast out a few of those caves for a hangar."

Magra lurched suddenly, and clung to a stanchion. "We're close enough now," he said. "That new gravity is Pluto's; about Earth normal. You can land this ship on Earth calculations. Allow for the same conditions as Earth, except there's no atmosphere."

Carver nodded, added another question. "That mountain range is a long one; where do I head?"

Once again Magra pointed. "See that giant crater—where even the granite is smashed? Well, that's where a meteorite hit the planet, not so long ago, as time is measured by human beings. Immediately below that crater our caves are located. That crater, by the way, is the most interesting thing on this black planet. It's what Caldwell intended to investigate . . . " he grinned in self-satisfaction " . . . he'll get to investigate it all right!" He went on hastily. "There's stuff there that we need, but it's tough to handle, and tougher to understand. The system that meteorite came from was different."

"What do you mean?"

Magra grinned again. "Never mind, you'll find out soon enough!"

CARVER gunned the ship down toward the base of the white mountains looming eerily in the darkness now as the black bulk of the planet blotted out more and more of the starry heavens. Ahead, the colossal crater began to amply demonstrate the tremendous force with which the meteorite had plowed into the granite range. White fragments littered the plain for hundreds of miles around; great pieces miles in diameter, and smaller debris that gleamed like white jewels in the dim sunlight.

The dust desert itself was a dull gray-black expanse, seemingly perfectly smooth, and as level as a table-top.

"No air?" questioned Carver suddenly. "How do you manage?"

Franco Magra tossed his head in obvious pride of achievement. It was odd the way the man gloried in his mechanical and engineering ability. Almost an insufferable egotism. "I'm an engineer," he said. "And old man Mi . . . the boss," hastily Magra amended his near slip, " . . . was pretty good at science and engineering himself. Those caves are protected by air-locks that are better than those on space-ships themselves. The caves are supplied with air from a simple, but marvelously effective electrolysis unit, connected with a water supply reached by a well. Pluto isn't a dead world, by any means, even though it is an airless and frozen one."

Magra peered down at the surface of the desert below, which was suddenly rushing past with express speed as the ship zoomed down toward its surface. "Level out!" he exclaimed hastily. "Make a slide landing. The ship will travel over that dust like snow."

Unobtrusively Carver snapped the safety catch on his seat, while he edged the ship down. Level with the surface at last, he stole a covert glance at Magra, whom he saw was intent on the mountains before them. Then, nearing the surface, he depressed a top-hull

guiding rocket.

The patrol ship dipped down sickeningly. It struck the dust and bounced dizzily, nearly rolling end over end as it caromed from the surface.

Carver grunted as the straps cut into his body. He clung to the controls grimly. Beside him, Magra had uttered a startled curse, grabbed out wildly as the ship bounced, then crashed heavily against the bulkhead. He went limp and slumped down.

Like a bob-sled, the ship slipped along the dust, completely buried in a flying cloud of the impalpable stuff. Then slowly it came to a halt. Carver released his straps, rose to his feet, and stood over the unconscious pirate, a grin on his face.

"Well, Mr. Franco Magra," he said aloud. "How do you like that? And just as soon as you come to, we are going to go to those caves of yours and have a little talk with . . . *her!*"

With his face suddenly sober, he bit his lip.

" . . . which isn't going to be easy!" he muttered, aware all at once that he had a miserable feeling somewhere inside him.

CHAPTER IV

An Ace in the Hole

THE big body of Franco Magra, encased in a space suit that made him seem even bigger than he was, loomed in the dusk before Carver as both men halted to catch their breath.

Carver spoke into his radio transmitter, mounted in his helmet. "You weren't wrong about this dust being hell to walk through," he commented. "I don't mind resting a minute or two myself. How much further is it to the caves?"

Magra's voice broke from the microphone sullenly. "About a mile, Carver. But it isn't going to do you any good to hold a gun in my back when we get there. You can't escape, and you can't rescue Caldwell."

"That's what you think," grunted Carver, easing his metal-clad body to the soft dust and relaxing. "But I don't intend to hold a gun in your back."

The visor of Magra's helmet swung toward him from where the pirate sat, and their eyes met. "You don't think you are going to walk blithely in and get a hearty welcome?" Magra queried scornfully.

"Exactly," returned Carver complacently.

"You're a fool!"

Carver grinned. "How would *you* do it?" he asked.

Magra laughed caustically. "There isn't any way to do what you think you can do! If I were in your shoes, I'd take this opportunity to get the hell back to my ship and scoot for Earth as fast as I could. You'll never rescue Caldwell, and you'll never get out of those caves alive, once you get inside."

"But I know too much to be allowed to return to Earth," Carver pointed out subtly.

The other was silent, and Carver resumed. "Don't you think I see through your suggestion? I wouldn't get a hundred thousand miles away from Pluto before your mystery ship caught up with me and blew me out of space. So, you see, Mr. Magra, the way I figure that angle, there isn't any way to do what *you'd* do. Which makes my plan just as good as yours, and personally speaking, a little bit better, with my slight improvement. . . . "

"What improvement?" asked Magra in puzzlement.

Carver grinned and heaved himself erect. "You'll find out," he promised. "And now, get on your feet and lead

the way to those caves. I'm tired of slogging through this dust, and the sooner I get out of it the better I'll like it."

"And I!" exclaimed Magra. "Because when we get to the caves, you'll find out a few things—and they won't be exactly what you expect, Mr. Superpoliceman!"

He led the way once more through the shifting, powdery dust.

Half a mile away loomed the white mass of the granite Ice Mountains, their sheer cliffs and jagged spires presenting a weirdly beautiful appearance. They seemed as raw and freshly upthrust from the bowels of the planet as though they had been flung into the starlight only yesterday. What vast cataclysm must have torn them from their normal place at the planet's core? And how many uncounted ages had they existed, remaining without decomposition in airlessness, where no action of wind or rain could erode their peaks and spires?

Carver admired the awesome beauty and grandeur of the scene as he walked heavily along. And speculatively he eyed the nearing jagged slope for something he hoped to find conveniently nearby their apparent destination.

"There's the passage, leading to the caves," came Magra's voice in his phones. "Right behind that big boulder, where it can't be seen from the desert, or from above." He halted and pointed with one space-suited arm.

Carver peered ahead, noting the position of the huge boulder, evidently one of the many fragments flung down from the peaks by the impact of the giant meteorite that had caused the crater he'd seen from space. There was no hunt of the location of the passage behind it.

"Certainly is well hidden," he commented. "And now, we'll take care of that little improvement on my plan. Start walking directly toward that crevice over to the side." He indicated a crack in the slope of the mountain.

Hesitating a moment, Magra complied. Carver followed after, his weapon at the ready for any overt move on the part of the Martian.

Reaching the gloom of the crevice, Carver motioned Magra into its depths, leading perhaps fifty feet into the mountain.

"And now, Mr. Magra, please lie down on your belly and put your arms behind you," he ordered.

MAGRA whirled. "You dirty skunk," he spat out. "So that's what you're going to do—leave me here to die! My air will last only seven hours!"

"That's plenty," returned Carver, his voice suddenly hard. "And if you don't get the idea by now, here it is. If I don't get Caldwell, and a free pass to the desert and my ship, you'll never leave this crevice alive. But I think your companions will listen to reason and trade even with me."

Magra glared at him, and Carver waved an arm impatiently.

"Lie down, before I decide to shoot you down and bluff about having you hidden someplace."

"They'll think you're bluffing anyway," said Magra hoarsely.

Carver shrugged. "That'll be too bad—for you! Lie down."

Slowly, awkwardly, Magra lowered his body to the dusty floor of the crevice and lay face down, his arms behind him. "I'll get you for this, Carver," he grated, "if it's the last thing I do!"

"You're welcome to try," Carver grunted, securely fastening the metal arms of the suit with strands of wire from the kit at his belt. "I'll radio your location from the ship when we're far enough away to prevent your detectors

locating me." Finishing with the arms, he bound Magra's legs tightly together. Then he stood erect.

"Turn over," he commanded.

Magra's body heaved, and with vast effort he managed to turn half around. "Damn you," he grunted breathlessly. "How do you expect me to move in this confounded dust? I couldn't move a dozen feet in an hour!"

"That's what I wanted to find out," Carver grinned. "And just to make sure you don't roll out of this crevice, I'll take the trouble to pile a few fragments around you and make sure you can't do any rolling. I think you'll find it even tougher to roll over a couple chunks of granite."

Suiting the words to the action, he piled a bulwark of granite fragments across the crevice, effectively sealing Magra in his prison.

Then, surveying his work in satisfaction, he wheeled toward the entrance. "Thanks for the help, Mr. Magra. And don't get impatient. I'll radio your location just as soon as possible. Any delay you can lay to the door of your comrades—if they fail to listen to reason!"

He made his way from the crevice with Magra's curses ringing in his ears. With a wry grin he raised a hand and spun the receiver to another wavelength. Magra's voice was stilled.

Outside the crevice, he turned toward the tunnel, visible now as he slogged through the dust at the base of the huge boulder. A thought struck him. He turned to inspect the tracks he left behind him. A smile creased his face. The impalpable dust sucked right back into place as his foot emerged; left only a tiny depression no different from hundreds of others all around, obviously from the impact of meteorites through the ages. No apparent tell-tale trail was visible in the dusty plain to reveal the whereabouts of the helpless Franco Magra. He went on.

Reaching the tunnel, he proceeded down its length until he came to the air-lock Magra had described. A moment he stood silently, then he advanced with determination, and operated the controls. There was a momentary puff of dissipating air as the lock swung outward, then Carver stepped inside and closed the outer valve behind him. A light sprang into being as the catches engaged, illuminating the interior of the lock, which was revealed as a twenty-foot section of tunnel.

At the far end was the inner valve, and Carver eyed it a moment. Decisively he opened it, let it swing ajar, and then calmly divested himself of his space suit. Hanging it in a rack obviously for that purpose, he strode through the inner lock into a warm, muggy atmosphere beyond. He was in a long tunnel, on which opened various other entrances, some provided with doors. He advanced easily, inspecting every detail of the place as he moved forward.

Abruptly the figure of a man appeared in one of the branching tunnels ahead and halted. An exclamation came to Carver's ears. Before he could move, the pirate whipped a gun from his holster and leaped forward.

"Up with 'em, copper!" grated the man. "And don't make a move!"

CARVER elevated his arms calmly.

"Take me to Miss Malden," he requested.

The man stared. "Miss Malden!" His face creased into a sarcastic grin. "Well, of all the damn fools—sure, buddy, I'll take you to her. But am I right in assuming you just walked in here single-handed, and expect to pay a social call?"

Carver shrugged. "Social or busi-

ness," he stated flatly, "it's no concern of yours. Do I see Miss Malden, or don't I?"

The pirate flushed. "Mister Carver, I don't like your tone at all. And when you've finished your call, I'm going to make it a point to take it up with you. I'll show you whether anything that goes on here is any concern of George Buree or not!"

Carver eyed the man quizzically. Somehow he didn't seem the type who would be attached to a band of pirates. He was rather youthful, and not unhandsome. He was blond and blue-eyed, and his chin protruded aggressively. Carver decided he wasn't a bad sort of fellow and grinned.

"Okay, George. I'll be glad to take you on for a couple rounds any time we both find it convenient. But right now, I've got a terrific yen to see your boss on a matter of vital importance to all of us."

"Pretty slick, aren't you?" questioned Buree a bit admiringly. "But you've done an awful dumb thing coming here like this. I don't think you'll leave for awhile, and we'll find that convenient moment easy enough. Come on, I'll take you to the boss—to Miss Malden," he added with an amused grin.

He motioned ahead, down a branching tunnel, and Carver strode forward, Buree keeping close behind, with his weapon at the ready.

"You don't strike me as a pirate," Carver remarked over his shoulder.

"We're *not* pirates," Buree said flatly. "We aren't doing anything that isn't sheer justice. What we take, we've got coming, and someday—" he broke off and was silent.

"You fellows all seem to have the same conviction," observed Carver.

"What do you mean?"

"Skip it," said Carver.

They came now to a door, and Buree motioned to it.

"Knock on it," he commanded.

Carver rapped his knuckles sharply against the panel, and a feminine voice from beyond called out.

"Come in."

Suddenly through Carver's frame went a strange thrill, and a cold shudder. The tones were the familiar ones of Ina Malden, and all at once he was trembling at the prospect of facing her.

"What's the matter with you?" rasped Buree. "Didn't you hear her say to come in? Open the door."

As Carver placed a hand on the knob, a picture of the Commander of the *Josephine* pitching to the floor under the blazing gun of the amber-eyed girl rose before him, and gritting his teeth, he flung the door open.

FACING him was Ina Malden. As she recognized him, she swayed back, and an astonished exclamation came to her lips. "You!" she gasped.

He looked at her coldly, although his blood raced at sight of her. "Yes," he said. "I found you quicker and easier than I thought. And now, Miss Mystery Pirate, I think we understand each other a little better, and since we do, let's not waste time getting down to cases."

He advanced into the room and Buree followed, closing the door behind him. The action revealed the figure of another girl, slim, blond, exotic, standing to one side.

"Hello, Sis," said Buree aside to her.

Ina turned to Buree. "How'd he get here?" she asked.

Buree shrugged. "Just walked in through the air lock as though he was paying a social call and asked to be taken to you. A damn fool stunt, but he sure don't lack for guts!"

Ina faced Carver. "You came here

—alone!" She seemed incredulous.

Carver nodded. "Had to. It was the only way I could keep you from losing me in space, and—" he grinned a bit triumphantly, "—if you're wondering about Mr. Franco Magra, your engineer, that's what I came to talk about . . . "

The blond girl gasped suddenly, and a hand flew to her mouth. "Franco!" she exclaimed in distress. "What have you done to him?"

Carver eyed her speculatively, then grunted. "Nothing—yet!"

"What do you mean—yet?" asked Buree suddenly, stepping forward and jamming his weapon into Carver's ribs. "Spill it, copper, or I'll let air through you!"

Carver ignored him and faced Ina Malden, who was frowning in perplexity.

"Just this, Miss Malden," he said levelly. "I've come for Professor Caldwell, and the sooner you trot him out here, and escort us to my ship, the better."

The amber eyes staring into his widened. Then they flamed in sudden animosity and irritation. "Why?" she snapped. "Are you insane? Did that tap on the head affect your . . . "

"No," he interrupted, lips tight. "Let's not waste time. Your Mr. Franco Magra is at the present moment waiting for his air supply to give out. When it does, he'll die. Now, if I'm not out in space beyond detector range, when his air is gone, he'll stay right where he is. Is that perfectly clear?"

The blonde girl went white, and she staggered a bit. Buree leaped to her. "Take it easy, Mary," he said, eyeing Carver dangerously. "I'll take care of this guy. He'll take me to where Franco is, or I'll feed him to the disrupters . . ."

Carver smiled tightly. "I don't scare, Buree. Whatever disrupters are, they aren't going to hold a show over my cards. I hold all the trumps. Either I get Professor Caldwell, and get beyond detector range, where I can radio instructions on where to find Magra before his air is gone, or . . ."

"George," came Ina's cold voice, "go get Professor Caldwell. And hurry!"

For an instant Buree stared at her, a queer expression on his face, then he glanced once at his sister's tragic eyes, staring now at Ina. Without further word, he wheeled and strode out.

Ina turned to Mary. "You may go now, Mary," she said commandingly.

For an instant the blonde girl seemed about to say something, then she turned and walked into the tunnel outside.

"I gather that Mary is in love with Magra," said Carver drily.

"You gather too much!" flared Ina.

Baffled, and unable to suppress a sudden choking surge of jealousy that rose in him, Carver subsided, his eyes fixed on the lovely amber ones eyeing him so coldly.

A FEW moments later the sound of footsteps came from the tunnel, and into the room came the forms of Professor Caldwell and George Buree.

"John!" exclaimed Caldwell in amazement. "What . . . how. . . ?"

"I'll explain later," said Carver. "Right now, we're going to get back to the ship and get away from here . . ."

"Get away? But . . ."

"I've got one of the band hidden away with only seven hours of air, and I'm not telling where he is, until we're safely out of range," said Carver. "So let's get going. That seven hours is slowly being cut down, and we want to get out of detector range before we radio his location . . ."

There was a peculiar look in Caldwell's eyes and Carver halted abruptly.

"What's wrong?" he asked, glancing about in puzzlement.

"Nothing's wrong," said Caldwell slowly. "But—I can't go. I don't want to escape."

Carver was thunderstruck. "Don't want to escape!" he choked on the words. "What—" He stopped, unable to go on under the shock of this unexpected development. His gaze roved dazedly to Ina Malden's now gleaming amber eyes.

Caldwell spoke gravely. "I can't explain, John, but I'm not going to leave here. And it is my order, by the authority vested in me by the President, that you return without me."

"Return without you—!" Carver failed to comprehend the import of the scientist's words.

"Yes. Report me—kidnaped by pirates, and all trace lost," said Caldwell.

Carver snapped erect. "You are asking me to betray my oath to the Service," he said. "I'm afraid I can't do it."

Caldwell faced him squarely. "Your oath demands that you obey my commands, Carver, and you will carry them out. Absolute secrecy must be maintained. We came on a mission. That mission still holds."

"Does that mean that my part in the mission, beyond making this report, and maintaining secrecy, is over?" asked Carver.

Caldwell considered. "Yes, John," he said kindly. "I'm sorry I can't explain, but there are things—"

Carver drew himself erect. "Personally, sir," he said stiffly, "I believe you either planned this all along, or you've turned traitor. However, I'm only a Patrolman, and not a judge, and I'll carry out my orders, as I see them. However, I still have my oath, and it still holds me to duty. That duty is clear. I'll go back to Earth, all right, but Ina Malden goes back with me."

"Ina Malden," Carver turned to her. "I arrest you for the murder of Commander Taylor, and for piracy on the space-lanes!"

Caldwell leaped forward. "No, lad," he said sternly. "You return alone, and forget this idea of duty. I'm still your superior."

"I'll be the judge of how far your superiority goes," snapped Carver. "Let me remind you, my duty was made clear to me by the President and yourself. It is my duty to protect you, and apprehending your kidnaper is part of that job. Also, there is a man who will die in a matter of hours, if I don't tell where he is."

Baffled, Caldwell stared at him. Ina Malden stepped contemptuously forward.

"You win, John Carver," she said coldly, her amber eyes blazing. "Let's go."

"No!" came a sardonic voice from the doorway. "He doesn't win!"

Startled, Carver whirled to face the saturnine figure of Franco Magra standing in the doorway, a gun leveled full upon Carver's breast.

"How—?" he gasped.

Magra laughed. "Your improvements," he explained in derision. "Your plan was perfect. Your one mistake was adding those fragments of granite to keep me from rolling out of the crevice. But for that improvement, I wouldn't have been able to find a jagged edge to cut through the wires you used to tie me up!"

CHAPTER V

"My Name Is Not Ina Malden"

CARVER stared bitterly at the heavy door barring the entrance to the tiny cave that was now his prison. He'd

been thinking deeply for an hour, and his mind reeled with the numberless conjectures that coursed through his brain. Was Caldwell a traitor? Had he planned this secret expedition for his own ends, simply to join up with this pirate band? And if so, why?

Again, if that were so, how had he duped so important a pair of men as the President, and the head of the Mellon Institute?

On the other hand, was he sincere? Did the mission really demand that he apparently throw in with the pirate band? What *was* the mission?

Carver groaned. Was he doing his duty, or was he being a fool?

His thoughts went to Ina Malden. A pirate! How could she be a criminal, a killer, an outlaw! The very thought stung him. How had he so badly judged her, those weeks in space, and back on Titan when she'd slapped his face and vanished into the darkness. That girl hadn't been bad. She'd been the girl he—

"Yes, damn you," he said suddenly, harshly aloud. "You love her!"

The exclamation was an accusation. And as he realized the accusation was directed at himself, he sat on the edge of his bunk dejectedly.

"You poor, miserable fool," he whispered. "You're sticking up for her—a murderess! You aren't worth the uniform you wear. It's *you* who are the traitor!"

He became suddenly aware of a rustling sound, and looked up. Under the door a square of white paper was being slid. He leaped forward and snatched it up, hearing the sound of retreating footsteps outside. Opening it hastily, he read its contents.

"John:

I will aid you to escape at the first opportunity. You must return to earth and report my complete disappearance. No one must know where I am, until I return (if I ever do). I swear it is your duty. I know now what I face here, and I must find some way to combat it, or the earth will see such horror as it has never seen before. I must appear to join the pirate band—and I admit I have some reason and justification for doing so beyond my own duty, as you will no doubt learn from other sources, so I tell you first. That is the only way I can gain the time to do what I must find a way to do. Believe me. Destroy this note.

Caldwell"

For a long moment Carver toyed with the paper in his fingers, then he groaned again.

"That makes it worse. I know now less what to believe is right than I did before—but after all, Caldwell has given me a means to destroy all his plans by giving Ina this paper, which would seem to indicate he trusts me—or else is playing me for a bigger sucker than I think he is—"

With a bitter laugh he drew a match from his pocket and carefully burned the tiny bit of paper. He knew why he'd burned it; and it wasn't because he believed Caldwell.

"We'll see about that escape!" he muttered.

AN hour later his cell door swung open and George Buree stood in the opening.

"Come on, Carver," he said. "Miss Malden—" he grinned "—wants to see you."

Wordlessly Carver preceded him. Buree directed him to the doorway leading to the cave where he'd first seen her. They entered, and the appetizing aroma of food came strongly to Carver's nostrils. He realized suddenly that he was hungry.

Before him sat Ina Malden, at a tiny

table set for two.

"Will you dine with me, Mr. Carver?" she asked sweetly.

He was astounded. For an instant he stood, unable to find words to say.

She nodded at Buree. "You can go, George. I'll take care of Mr. Carver."

"You're sure . . ." began Buree hesitantly.

"Yes."

Buree turned at the finality in her tone and left the cave.

Ina looked up at Carver. "I've never known you to be so reserved," she said calmly. "Why not sit down and enjoy this meal? I'm hungry, and if I judge rightly, you are too."

Baffled, Carver seated himself in the chair opposite her.

"What's the gag?" he asked abruptly.

She looked at him. Then: "Remember the last time we sat at a table together? In a little tavern on Titan?"

He nodded stonily.

"Remember what you asked me?"

He started. "I asked you to let your hair down . . ." he said at length.

She glanced down at the tablecloth and toyed with her knife. "That wasn't exactly all you asked," she said. Her eyes came up swiftly, and their amber depths were filled with an inexplicable light. "Well, I'm going to do what you asked. I'll tell you the whole story of . . . of why I couldn't go to Callisto."

"Isn't it obvious?" he asked grimly.

She frowned. "What do you mean?"

"You don't need to tell me," he went on harshly. "You had a date with that mystery ship of yours, to hold up the *Josephine!* You had a date with your pirate crew—to murder a man!"

Her eyes flamed at him. "I shot him in self-defense. None of us has ever killed before. You know that. It was either kill him or die myself."

"The courts wouldn't see it that way," he said mercilessly. "The justification doesn't lie in the self-defense angle, but in your purpose on that ship, and *that* certainly was not self-defense. Therefore, neither was your killing."

"You talk of justice!" she shot at him bitterly. "Was it just that an innocent man was sent to life imprisonment on the moon? Was it justice that his greatest invention was pirated from him by an unscrupulous corporation? Was it justice that my mother died of a broken heart when my father's death was reported?"

He stared at her wide-eyed. "What do you mean. . . ?" he began.

"I mean my name is not Ina Malden," she snapped. "It's . . ."

He leaped to his feet, realization flooding through him. "Mitchell!" he gasped. "You—you're Arnold Mitchell's daughter!"

"Yes," she said quietly. "My name is Ann Mitchell."

HE sat down heavily. "Go on," he said wearily. "You might as well tell me the whole story."

She waved a hand at the table. "You might as well eat while I tell you."

He nodded, and began to consume the excellent food before him, glancing occasionally at her as she talked.

"When Dad escaped from the Lunar Penal colony, one of the men who helped him was killed. It was his crushed body that was found, and it was thought to be Dad. But he escaped, with the help of some of his old laboratory friends, and a few others who knew the truth.

"Spacelines stole the principles of the space liners, like the *Josephine,* from Dad, and had him sent up for life on a trumped up spy charge. Forty years he'd worked on that principle, and then it was pirated from him and he found himself thrown, no longer a young man, into the horror of the penal colony on

the moon. Justice . . . ?" She paused bitterly a moment, then went on.

"For twenty years he worked here, to complete his plans for revenge on Spacelines. Twenty years, and then . . . he found a disrupter he hadn't dreamed the meteorite could contain—"

Carver stopped her. "I don't understand this disrupter stuff," he said. "What are they?"

"Magra showed you the crater where the meteorite struck ages ago?" she asked.

He nodded.

"Well, that meteorite is a stranger to the solar system, maybe even to this universe. Its elemental make-up is entirely foreign to the elemental make-up of all substances as we know them. Not all the elements seem to be present, but there are at least twenty—and although they seem to be identical to our elements, they have a constitutional animosity to them. Essentially they are the same element, but Daddy said something about the possibility of their having a reverse atomic construction, which makes them violently disruptive. Whenever a component element from the meteorite comes in contact with its opposite twin in our elemental scheme, it causes our element to burst into energy largely dispersed as heat, leaving an ash which looks like inert crystal. And through some weird catalysis, the meteoric element remains unchanged, unreduced, capable of continuing its destructive action on its affinity element until that element's supply is exhausted."

"You mean, that if some copper from this meteorite came in contact with copper in our elemental form, it would disrupt that copper into . . . heat, ashes, and crystal?"

"Yes. Except that copper is the one element we are sure the meteorite does not contain. In fact, we use copper as the only safe container for it."

"And your Dad—what was the element he found?" Carver asked hesitantly.

"Carbon."

"Carbon?" repeated Carver uncomprehendingly.

"Yes. And carbon is one of the major constituents of the human body . . ."

"Great God," Carver exclaimed. "You mean . . . ?"

"It killed him . . . horribly," she said, her face white. "He burned to death, before us all, bursting into horrible flames that left nothing but ashes —and crystals; and we could do nothing to stop it . . ."

"You poor kid," said Carver gently.

Her amber eyes fixed on him. "But before it happened, he made me promise that whatever happened to him, I would carry out the plan he had made to ruin Spacelines, and get back what rightfully belonged to him—and to me."

Carver stiffened. "Yes," he said, his eyes on hers.

She leaned forward suddenly. "John, why don't you take that uniform off—and stay here with me, just as Professor Caldwell is doing?"

Slowly he pulled himself to his feet and stared down at her.

"On Earth they will think you dead. No one will ever find us. And in a few more months, our plans will be finished, and we can go back, and put Spacelines out of business. Their ships, any ships, will be so obsolete beside ships like our new one, that they'll be ruined overnight. And we have the money, the capital, now, to back us up. Professor Caldwell was an old friend of Dad's . . ."

"So he *is* a traitor!" Carver grated harshly.

She eyed him, her body tense. "Never mind him. None of us are traitors—or pirates! I've asked you a question. Do

you realize what it means—that I am offering you—" her voice became soft "—myself!"

"I don't want you that way . . ." he began angrily.

She rose to her feet. *"That way!"* she breathed. "Do you mean . . . ?"

For an instant he stared at her. Then he nodded, slowly. "Yes," he admitted directly. "I love you. But I'd rather kill you than have you at the cost of my self-respect—and my duty!"

For a long moment her eyes met his, the glow in their amber depths slowly dying. Then they dropped and she said lowly:

"I knew you would say that—but I had to ask. Of course, you will have to remain here, a prisoner. But you have the freedom of the caves. There is no way to escape."

Abruptly she turned and almost ran from the room.

CHAPTER VI

The Disrupters

GEORGE BUREE dropped the space suit unceremoniously on the floor and jerked a head at Carver.

"Get into it, Carver," he said. "We're going places."

"By whose orders?" asked Carver.

"Never mind who," snapped Buree. "It just happens we're going on a little job of work, and you might as well earn your keep. And besides, you've been asking a million questions about the disrupters. Now's your chance to see 'em, and get a little exercise into the bargain."

"You mean we're going to the crater?" asked Carver suddenly snapping erect.

Buree grinned. "Don't get excited, copper. You won't get a chance to get away. We're only giving you one tank of air, and that ain't enough to get you out to your ship on the desert. So if you're anxious to die, go ahead and make a break for it."

Carver grunted and proceeded to climb into the space suit.

"Tune your radio to minus 91 band," said Buree as he pulled on his own helmet.

Carver nodded and snapped his own helmet into place, adjusting the oxygen before he switched the radio on and tuned to the band.

"Ready?" questioned the tinny voice of the pirate.

"Yes. Let's go."

AT the airlock Carver halted. Two other figures were waiting, clad in space suits. One was Franco Magra, and the other was turned away from them, so that Carver couldn't see the face. But the voice that suddenly rang in his ears was that of Ann Mitchell.

"Lead on, Franco," she commanded. "George, you carry the ropes and the copper nets. I'll bring up the rear."

Buree eyed the pile of ropes and nets and grunted. "I'll be hanged if I carry everything," he said. "Here, copper, you grab an armful, too."

Carver's face burned in his helmet as he realized Ann Mitchell was deliberately ignoring him. Was it to torment him? If not, why had she included him in this mysterious trip to the crater?

Tight-lipped, he gathered a load of equipment and strode after Magra toward the airlock.

Outside, the party turned through the dust toward the south, and after a half hour of steady going, Carver began to sweat in his suit. He cursed the surge of resentment that had caused him to shoulder the greater part of the equipment, and then grinned wryly as he realized the reason for it. But the grin died, and the dull ache in his breast be-

came accentuated as he thought of the look that had been in Ann Mitchell's amber eyes as she fled from the room after his refusal to join the party.

She was behind him now, and he could almost feel her eyes staring at his back. Abruptly he whirled . . . and stared directly into the face-plate of George Buree, who was grinning.

"What's the matter, copper?" said Buree derisively. "Pick up too big a load, smart guy? Turn around and get going. I'm enjoying this more than I thought I would."

Wordlessly Carver turned and resumed his slogging through the difficult footing of the dust. She hadn't been behind him anyway, staring at him. He, John Carver, space patrolman, was acting like a love-sick fool.

"You damned fool!" he whispered to himself.

"What's that?" came Buree's voice in his phones. "Who's a damned fool?"

"Shut up, George," came Ann's voice in the phones. "You aren't going so hot yourself, with a lighter load."

Momentarily Carver grinned, but up ahead, he saw Franco Magra stop dead in his stride, then abruptly forge ahead again.

All at once Carver realized there was some deeper significance to this trip to the crater than was evident on the surface. He tensed, and the rest of the trip forgot the load he carried. He was thinking deeply.

AN hour later, after a strenuous climb up a gradual slope of slippery white granite, they stood on the lip of the giant crater and stared down into the debris of this cosmic collision.

Carver dumped his equipment to the ground and looked with interest into the deeply shadowed depression. Huge, fantastically shattered masses of granite lay scattered about as though broken on the anvil of Thor. Down in the depths darker masses lay, almost buried in soft, powdery ash, mingled here and there with crystal formations that gleamed in the starlight.

"Professor Caldwell wants some carbon disrupters," Ann's voice came. "They're located at the base of this slope, at the bottom of a twenty foot cliff. If we drop a net from that cliff, we should be able to get a few."

Franco's voice came. "George, drop the lines down that slope and over the cliff edge. You and Ann stay up here and be ready to pull up the nets. Carver and I will go down to that ledge down there and throw the nets out."

Carver eyed the ropes. Then he surveyed the scene below. He grinned tightly. "Better make those ropes pretty tight up on this end," he said. "That slope is slippery."

"What's the matter?" jibed Buree. "Afraid I'll let go this end?"

"No. But I'll feel a lot safer if we tie those ropes around a couple of boulders," returned Carver levelly. "I'm anxious to see some of these disrupters, but I'm not anxious to find myself dumped in among 'em." He eyed Magra for a long instant.

The Martian returned his gaze imperturbably. "Nor I," he returned calmly. "But I guess Ann and George can tie knots good enough for me, Mr. Carver, and that should be good enough for you."

He turned and dragged the copper nets from the pile of equipment and began fastening the clips to ropes.

George Buree and Ann began looping the other ropes about boulders and securing them. When all was ready, Magra let the nets slide down to the cliff edge and over.

"There's a ledge directly over the lip," he said. "We'll do our fishing from there."

Following the nets, he grasped one of the descending ropes and slid almost recklessly down. Carver followed. A moment later, both men stood on the tiny ledge, out of sight of the pair up above. Below lay the crater floor, and the gleaming crystal masses almost buried in choking ash.

"Everything okay down there?" came Buree's voice.

"Yes," replied Magra. "We're getting ready to throw out the nets now."

Suiting the action to the word, he heaved a net far out. A cloud of ash spurted up momentarily, then subsided. Carver followed suit with his net, and then turned to Magra. The man was motioning silently to him, and scratching something in the dust of the ledge with his metal-encased foot. Puzzled, Carver eyed him, then glanced down. There in the dust were the symbols -76.

"What . . . ?" he began.

"Okay, George," Magra said loudly. "Pull up the nets after I count ten, to give us time to get off to one side."

But he made no move, and his hand lifted, to hold a finger across his face-plate for silence. Then he pointed to the -76 in the dust, and began counting.

"One, two, three . . ."

He reached out and turned Carver's radio control. His voice ceased, but Carver could still see he was speaking. Puzzled, he finished turning the dial to -76, then waited.

MAGRA twirled his own dial and suddenly his voice broke in. "Carver," he said swiftly. "I want to say a few words for your ears alone. That's why I had you shift bands."

Carver grunted. "Go ahead. What's on your mind?"

Abruptly Magra drew his gun. "Just this," he snarled. "I know your game, and you're not going to get away with it, see! Ann belongs to me, and I'm keeping her. So, Mr. Carver, you aren't coming out of this crater alive!"

Carver eyed him coldly. But he made no move. Magra went on.

"I know why Ann had you come along on this trip," he said. "She's in love with you, and she's got plans of taking you into the party . . ."

"I wouldn't join with pirates and murderers," interrupted Carver coldly. "But you wouldn't understand that. As for Ann being in love with me, that's none of your business."

"No? Well, you aren't fooling me a bit. That act goes over big with Ann, but it don't with me. Caldwell was pretty high and mighty too, until he convinced Ann he was an old friend of her father. Then he decided very generously, and out of respect for his old pal, to throw in with us. Well, the old coot won't get anything out of it but a lot of experimenting—on things that don't mean anything. I'll take care of these carbon disrupters myself! As for you, this is the end of the trail. I'm going to take charge of that."

"No you won't," said Carver contemptuously. "Because your boot is dissolving. You must be standing on a chrome disrupt—"

He hurled his body forward with all his strength as Magra glanced hastily downward, and his fist knocked the weapon from the pirate's hand. Then they both went down with a crash. All at once his radio phone went dead, and he realized the crash had knocked it out of commission. He could no longer hear Magra's voice, though he could see his lips moving through his face plate.

Hastily he rolled away. Hand-to-hand fighting was impossible. The risk of breaking a face plate was too great, and meant instant suffocation. The only chance to gain the upper hand before Magra could signal to his companions was to get that gun.

Magra was already on his feet, his fingers twisting at his radio dial when Carver saw the weapon. He snatched it up. Leaping forward where Magra could see him, he brandished it menacingly. Abruptly the pirate's hand dropped from the radio dial. Carver walked slowly forward, reached out, and knocked the dial off with an armored hand. Magra's face was white with rage, but he dared not risk a move. Carver backed away again, grinning.

"That makes us even," he said to himself.

Picking up a rope, he motioned to Magra to lie down. "Never thought I'd be doing this again," he remarked aloud. "My but you look mad, Mr. Magra. I'm glad I can't hear what you are saying. I don't believe it's very complimentary."

Hastily he secured the pirate, then faced the crater edge above him. Grasping the rope, he climbed laboriously over the edge of the ledge, then on up the slope. Above him the copper nets were just disappearing over the top of the slope. Visible was one space-suited figure. He held his head low down and continued his climb. Coming over the edge, he leveled his gun menacingly. In the face plate he recognized the startled face of Ann Mitchell. But her lips were not moving. She wasn't calling Buree. Why? Carver finished climbing the slope, and as Buree's form loomed up in the dim light, he covered him too.

He waved at the weapons in Buree's belt, and motioned toward the crater. Scowling, Buree lifted them gingerly with one hand and tossed them over the edge. Ann did the same at Carver's motion. Then Carver motioned Buree to the edge of the slope.

"Down," he said aloud.

Buree, watching his lips, could not mistake the order. But he hesitated.

"Afraid?" Carver mouthed the word carefully, then grinned.

Buree lurched forward, his lips tight, but he halted as Carver leveled the gun directly on his face plate. For an instant he stared, then he turned and slid slowly down the slope, guiding himself with the rope.

Carver turned to Ann, removed one of the extra air cylinders at her belt and transferred it to his own suit. Then he motioned her forward. At her questioning look, he pointed out over the desert.

"My ship," he mouthed.

She glanced once at the crater, then shrugged and turned to descend to the desert floor.

TWO hours later he slammed the inner port of the patrol ship behind him and removed his helmet with an explosive sigh of relief. Ann did likewise, and faced him, her auburn hair damp with sweat, her face grimy.

"What do you expect to gain by this?" she asked.

He looked at her. "My resignation from the service," he said harshly.

"Your resignation?"

"Yes. When I turn you in, and give the Stellar Patrol the location of your pirate hideout, I'm through. I'll never wear a uniform again."

He stepped out of his suit and waved the gun at her. "Take off your suit," he directed.

She obeyed in silence, her face tense. "What did you do to Franco?" she asked lowly.

Once again the surge of jealousy went through him, and he thrust it down with an effort.

"Tied him up again," he said briefly.

"Then he'll be after us in the *Starlight*," she said. "You can't get away."

"Oh yes I can. With you aboard, they won't dare touch me. I can ride

right on through to Earth and nobody'll stop me."

"That's what you think. Even at the cost of my life, they'll go through with our plan. That has been our watchword for twenty years. They'll kill me first, rather than let you spoil their plans."

"No they won't. Because Franco Magra is in love with you, and he won't chance it."

She stared. "You're crazy!"

He tightened his lips and strode forward to the controls.

She went on. "He's in love with Mary, and she with him . . ."

"We'll see," he said grimly. "Get into an acceleration seat. I'm blasting off."

She slid into a seat and fixed the straps. He blasted off. For a half hour they were silent as he launched the speedy patrol ship out into the void. Behind them Pluto became a giant black globe with a white gash across its face like gleaming white teeth.

"Here comes the *Starlight*," Ann broke the silence.

Carver glanced to the stern and picked out the silver speck rapidly growing larger behind them. He shrugged. "Won't do them any good," he said. "They won't kill you. Not while Magra is commanding."

The radio broke into action, and Carver switched on the receiver.

"John," came a voice. "Are you listening?"

Carver started. It was Caldwell's voice. He stepped to the speaker.

"I'm listening, Caldwell," he said tersely. "And I'm sorry, but nothing you can say will mean anything."

"Listen, lad," came Caldwell's voice with a note of urgent plea in it. "You've got to believe me. It's certain death for you if you go on. If you will release Ann, I'll guarantee you we won't molest you. You can continue on to Earth and . . ." the voice hesitated momentarily, then went on, ". . . and report me kidnaped, location unknown."

"You're asking me to be a traitor to duty," rasped Carver. "And you're wasting your time."

"Your orders were to obey my commands regardless of their nature," said Caldwell.

"And I'll do that," returned Carver bitterly. "I'll report you kidnaped, all right, and I won't give your location. But I can't guarantee what Ann Mitchell will say. However, that's none of my concern. My orders when I was placed on this mission didn't include releasing pirates after I've captured them, and I'm taking Ann Mitchell back to Earth with me."

THERE was a momentary silence. Then Caldwell's voice came again. "You'll take the girl you love back to —execution?" he asked.

Carver stiffened. "Yes," he said harshly.

"Then I shall have to blast you out of space," said Caldwell heavily. "I cannot let you ruin my plans."

"You talk as though you were in command," Carver said.

"I am."

"What about Magra? He's in love with Ann, and he won't dare blast this ship."

"Magra is not aboard," came Caldwell's voice calmly.

Carver gasped. "Not aboard . . . !"

"No. Mary saw you escaping, and I followed. I don't know where Magra or Buree are. I trust you haven't killed them. For Mary's sake."

"I haven't. They should be safely in the caves by now."

"Good," returned Caldwell in evident relief. "And now, lad, please listen to

reason, and drop Ann out of the airlock, where I can pick her up. I guarantee I'll see that you aren't pursued."

"No," said Carver. "I can't do it. I told you I'd turn her in, and I'll do it. As long as I wear this uniform, I'll do my duty. And after this job is done, I'll take it off. Goodbye, Professor." He snapped off the receiver switch and stepped back to his controls.

Abruptly he heard the switch snapped on again, and Ann's voice.

"Professor Caldwell," she said swiftly. "Turn back, and carry out our plans. Forget me. I won't talk. I love John. Goodbye." She turned, her back to the receiver and faced Carver, who rose slowly to his feet and advanced.

"John," she whispered. "Do your duty . . . because I admire you for it . . . but please—kiss me now. We can have two weeks of happiness before we get to . . . Earth—" her voice broke and her eyes filled with tears.

With an exclamation Carver leaped forward and swept her into his arms. "Ann!" he uttered brokenly. "Why do you make it so hard for me . . ."

Carver felt something hard pressing against his body

He pressed his lips against hers, and for a long moment she clung to him. Then abruptly she pushed him away and he felt something hard pressing into his stomach.

"Back!" she cried triumphantly, the tears in her eyes still glistening as she laughed harshly. "Step back. Or I'll shoot!"

"My own gun!" he choked. "You tricked me! You faked all that—that kiss!"

She stopped laughing, and her chin trembled momentarily. "No," she said with sudden pallor creeping over her cheeks. "I didn't fake it. I meant it. I do love you, John, but my duty is as great as yours. And I will no more be a traitor than you—even for love. And now, if you don't want to force me to kill you, you'll sit down at those controls and stay there without moving for ten minutes." She switched on the transmitter.

"I'm coming, Professor," she said. "Pick me up." She turned back to Carver.

"Quick!" she said. "I'd rather you didn't see me crying, and I'm going to . . ." Abruptly she turned and ran from the control room. Carver stood where he was, his mind in a turmoil. He was still standing there when he saw her space-suited figure float away from the airlock into space.

Then, when the gleaming silver shape of the *Starlight* had drawn up and swallowed the mote that was Ann Mitchell, his fingers crept up to his shoulder and grasped the stripes of the Stellar Patrol. Grimly, tight-lipped, he ripped them off and allowed them to drop to the floor of the control room.

(To be concluded next month)

Don't fail to read the second and last installment of this thrilling interplanetary novel, in the April issue. What will John Carver do? Why has Professor Caldwell turned pirate? What sinister plan lurks in the mind of Franco Magra, the Martian engineer? For the most amazing developments you have ever read, your editors guarantee the concluding chapters of "Black World." It's the smash interplanetary story of the year!

Suddenly, to his consternation and the amazement of everyone, *the microphone began to talk back—interrupting him with a discourse on an entirely different subject!*

Another gentleman had a similar experience not long after. Hard of hearing, he was using an electrical earphone while a visitor in his office spoke to him. But the customer's words, by some magic, were abruptly drowned out by a burst of *music* from the earphone!

The cause of these and other strange occurrences like them was finally traced to *television*. For reasons unknown to engineers, television's sound signals seem able to get picked up by almost any sort of electrical gadget!

On regular radios this television interference is likely to spread over the entire dial. Stations have had to send radio listeners advice on how to eliminate it. But after ploughing through the six pages of technical instructions, some fans have thrown in the towel.

Probably figure anyway they can pick up the electric razor and catch the next broadcast of the Barber of Seville.

NEAREST thing to "riding on air" is rolling your car along on synthetic chemistry's newest achievement for the automobile—tires made, *literally*, of *gas*.

Butane gas, ordinarily used for heating and welding, becomes butadiene gas when stripped of four atoms of hydrogen. And that, when its molecules are rearranged in chains, becomes a tough, solid substance—butadiene *rubber!* While similar to such other synthetic rubbers as the German "Buna" and du Pont's "Neoprene," made respectively from acetylene and chlorine, butadiene costs only a third as much to produce. It is almost as cheap as *natural* rubber!

Moreover, while it must sell at about 20c a pound against real para rubber's 16c, *it wears three times as well.* . . . Which is why they're predicting that in another year we'll all be riding around on tires made from gas. —*Rap.*

WHAT'S WRONG WITH ROCKETS?

By WILLY LEY

One of today's foremost rocket authorities gives us his viewpoint on the shortcomings of rockets.

ON October 14, 1935, an experimental all-metal rocket rose from a proving ground near Roswell in New Mexico and, driven by gasoline and liquefied oxygen, attained an altitude of 4,000 feet. On May 31, 1935, the same rocket had ascended to an altitude of 7,500 feet. It had been built and designed by Professor Robert H. Goddard.

A few years earlier, in July, 1933, a 220-pound all-metal rocket built by engineers of the German Rocket Society had made a flight near Magdeburg. It was flight No. 106 or 107 of the liquid fuel rockets constructed by the Society mentioned. At about the same time rockets built along the general lines of the German models by the American Rocket Society made flights at Staten Island.

But since then nobody—with the possible exception of Professor Goddard, who declines to speak—did very much actual work. Rocket research, that five or six years ago had been actively and vigorously pursued by quite a number of people in various countries, practically disappeared from current history and even the word itself does not mean much to most people except as the term for a device required in the plots of some comic strips. And those that do remember are apt to ask what was wrong with those rockets. Why was research abandoned just at that moment when those things called (partly for want of a better name) liquid fuel rockets had shown that, after all, they could fly? Did they not live up to the expectations of their designers, whatever these expectations may have been? And what were they built for, anyway?

As to the last question, I happen to know with aboslute certainty that they were not "attempts to reach the moon." Neither were they "forerunners of transatlantic rocket airplanes." And they also were not, as could be read occasionally in European newspapers, "future deadly instruments of war."

They were honest and very serious attempts to solve certain purely scientific problems and also to find out whether the principle of reaction against a jet of flame which motivates all kinds of rockets cannot be used to advantage for various purposes. Theoretical investigations had shown that rockets should be able to do a lot of things. But that same investigation had also shown that the existing commercial type of rockets, propelled by a tightly compressed "slow" powder-mixture was not efficient. It had shown, furthermore, that powder rockets never would be much more efficient than they are at present, in fact they were almost the most inefficient type conceivable, having only the two advantages of venerable old age and easy construction.

Thus various individual experimenters and a few groups of experimenters set out to build liquid fuel rockets. The crucial point in the beginning of the work was whether one could dare to inject liquid fuel from one tank and gaseous and/or liquid oxygen from another tank into the same combustion chamber without inviting inevitable disaster, at least for the rocket itself, possibly for all those nearby. Experts on liquid fuels and liquid gases insisted that explosions were inevitable. But Professor Oberth of the German Rocket Society (and, unknown to him and even a little earlier, Professor Goddard of Clark University) tried it and no explosion occurred. Explosions came later but then experimenters knew already that they occurred only if something was not quite right. If it had happened that the very first experiment had ended in a serious explosion—as was even likely since nobody knew anything of all the mistakes that could be made—rocket research might not have started at all. Then the liquid-gas-experts that had prophesied disaster would have been believed to have been right. Fortunately nothing serious happened and thus research was continued.

The actually flying liquid fuel rockets—at first only so-called rocket motors on fixed proving stands were tried—built later on did perform in accordance with theory and expectations, generally speaking. And even the most skeptical observer will admit that an entirely new device works pretty well if it climbs to an altitude of a little over a mile not quite two years after the first experiment during which time a groping and fumbling sort of research had to eliminate dozens of blind alleys before it could go ahead on the right way. In those experiments in which I took part it took a few weeks more than one year to see the rocket fly, counting from the day where the first sketch in a pocket notebook was drawn during a railroad ride. And in less than one year after that first flight small rocket models climbing to a half or a full mile of altitude were commonplace and shown to visitors on request while the big models were cooling off from test runs in another corner of the proving ground.

Why did progress stop just then?

In all the calculations that were made previous to an actual experiment there had invariably been

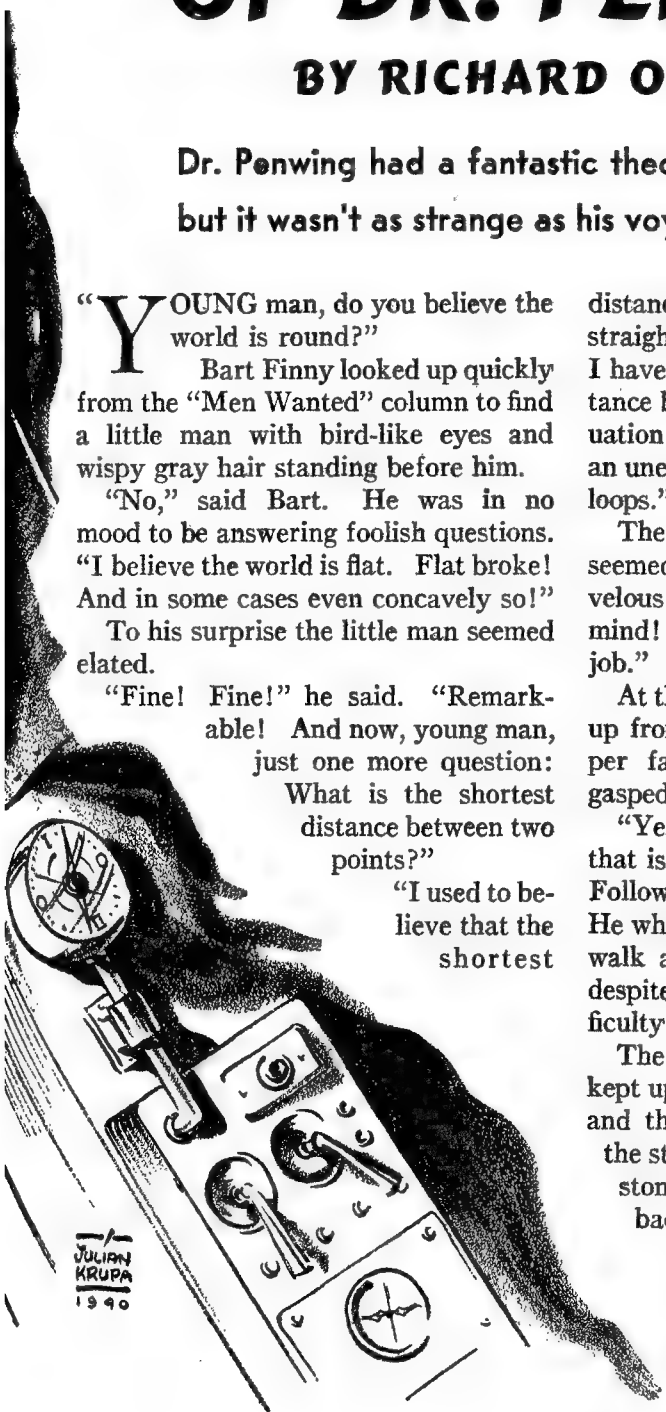
(Continued on page 49)

"We can't turn back," said Penwing. "This ship is in a dimension where there are no curved lines."

THE STRANGE VOYAGE OF DR. PENWING

BY RICHARD O. LEWIS

Dr. Penwing had a fantastic theory about the Earth, but it wasn't as strange as his voyage through space.



"YOUNG man, do you believe the world is round?"

Bart Finny looked up quickly from the "Men Wanted" column to find a little man with bird-like eyes and wispy gray hair standing before him.

"No," said Bart. He was in no mood to be answering foolish questions. "I believe the world is flat. Flat broke! And in some cases even concavely so!"

To his surprise the little man seemed elated.

"Fine! Fine!" he said. "Remarkable! And now, young man, just one more question: What is the shortest distance between two points?"

"I used to believe that the shortest distance between two points was a straight line," recited Bart. "But lately I have discovered that the shortest distance between the point of college graduation and the point of getting a job is an unending jumble of circles and dizzy loops."

The little man with the bird-like eyes seemed more elated than ever. "Marvelous!" he cried. "Such an open mind! You're just the man for the job."

At the word "job," Bart Finny leaped up from his bench, letting the newspaper fall to the ground. "Job!" he gasped. "Did I hear you say *job?*"

"Yes. I need a mind like yours. One that is entirely open and unprejudiced. Follow me. We have no time to lose." He wheeled about and started down the walk at such a rapid pace that Bart, despite his long, athletic legs, had difficulty in keeping up.

The little man, with Bart at his heels, kept up the mad pace for several blocks and then turned abruptly to hurry up the steps of a terrace to a large brownstone house that set some distance back from the street.

Together, they entered the house and went through a living-room, dining-room and kitchen respectively to finally emerge into—

a long, low-roofed building that had been obviously annexed to the back of the house. From the benches and equipment strewn about, Bart judged this room to be a laboratory or work-shop of some kind.

The little man halted. "I am Dr. Penwing," he said quickly. "I feel that some explanations are in order before we begin our trip?"

"Trip?" Bart's eyes popped open. "Where are we going?"

"To our antipode,* St. Paul island, just south-west of Australia."

It was Bart's turn to be elated. This was going to be great. He not only had a job, but was going to travel as well. That meant the job would last awhile, too. Several months at least. "I must have time to get a few of my things together," he mentioned.

"That will not be necessary," said Penwing. "We'll be back by noon tomorrow."

"Tomorrow!" Bart's heart sank. Of all the crazy ideas! But it was just his luck. After searching for a job all over this part of the country, he had landed one at last—only to find that his employer was as crazy as a loon.

"I must explain a few things," said Penwing. He glanced at his watch. "And I must hurry," he added. "Otherwise, we run serious chances of running into the moon."

Ye Gods! Bart felt like tearing his hair. How did the moon ever get mixed up in this? "Listen!" he said. "I accepted this job because I thought you had some work for me. But I'm not going on any round trip to Australia and back in twenty-four hours by way of the moon. That's out." He started toward the door. "And I'm leaving!"

Dr. Penwing clutched his coat in desperation. The coat was not a new one and a seam began to give way. Bart stopped. "All right," he said. "Maybe if you get a few more of those silly ideas off your mind you'll feel better."

DR. PENWING'S eyes were sparkling. "You see," he said, "I have discovered a *straight line!*" He made the statement with all the pride and emphasis of a man who had just done something as fully remarkable as finding perpetual motion, cold light and a dodo bird all rolled into one.

"I suppose you found it hiding somewhere on a ruler or a yardstick," said Bart.

"Quite the contrary. You see there are no straight lines on either of those devices. In fact, there is no such thing as a straight line."

"I see," said Bart. "And yet you found one."

"What I mean to say is," explained Penwing, "that a straight line is foreign to our world and to our conceptions. We can have a straight line only in relation to something else.* Never a true straight line in relation to all things at once. I mean we could never see such a straight line because the light rays we see travel in curves and not in a straight line dimension."

Penwing turned to a table near at hand. "Here," he said, "is a straight line."

Bart saw nothing on the table except a flat disc with a hole in its center. "It

* An antipode is a point upon the earth's surface diametrically opposed to another given point. —Ed.

* A carpenter's level is straight only in relation to the surface of the earth, which is really a curve. A pilot dropping a bomb from his plane, would see the bomb falling straight beneath him as long as he kept his speed consistent. But to a man on the ground, the falling bomb would fall through a curve caused by the speed of the plane and the pull of gravity. A man on the moon, due to the earth's rotating, would see a vastly different curve, while a man on the sun would see a still more complex gyration. A line that was "straight" in relation to all these men would be quite beyond the concepts of any one of them.—Ed.

may be there," he said, "but I don't see it."

"Naturally. A straight line is quite invisible. But if you pass your fingers directly above that disc, you'll be able to *feel* the straight line."

Bart reached his hand forward. Much to his surprise his fingers contacted what felt like a badly twisted sliver of steel extending up from the disc-like base. He began running his fingers along the curve of steel and the very next instant he let out a cry of alarm. *His fingers had disappeared from sight.*

Jerking his hand quickly back into reality, he stood staring at it.

"When your fingers disappeared," explained Penwing, "it was obvious that you were moving them along a straight-line dimension."*

Bart looked at the scientist in a new light. Perhaps he wasn't so crazy after all. "But what does all this have to do with the trip and my job?" he wanted to know.

"I'm coming to that," said Penwing. "Here is where I need your open and unbiased mind. I have worked alone with the problem for so long that I am afraid I can no longer approach it with the personal detachment of a true scientist. My own prejudice might bias me in my final decision.

"You see, I have just discovered that the earth is round and . . ."

"A fellow by the name of Copernicus beat you to that discovery by a few hundred years," mentioned Bart.

"But he had the wrong idea," argued Penwing. "He believed we were living on the outside curvature of this round earth. But we're not. *We're living on the inside.*"

"Nuts!" said Bart. "If we were living on the inside like Peter Pumpkin-Eater's wife, we couldn't see the moon or the sun or . . ."

"They're on the inside with us."

"But the sun is several hundred thousand times larger than . . ."

"No!" Penwing glanced at his watch again. "Science has been measuring sizes and distances in curved space with a faulty conception of angles and straight lines. An impossibility. It is like trying to measure the inside curvature of a rain barrel with a carpenter's square.

"Here," he said as he unrolled a large map and spread it out upon the table. "I'll show you how the earth really looks."

The map showed a circular cross-section of the earth. Within the large circle were series of curves. And inside the earth, in the space contained by the crust, were the stars, sun, and moon. The entire concept was of a huge earth, hollowed out, with all of space contained inside it.

"You see," said Penwing, "if I can but prove my theory it will revolutionize the entire concept of science!"

"It certainly would," admitted Bart. "But I still don't see what this has to do with the trip and my job."

"What I propose to do is to fly in a straight-line dimension from this side of the earth to the other side." Penwing looked at his watch again. "We will leave here at exactly noon and arrive at the other side of the earth at exactly midnight."

"I suppose you will be telling me next that you have a space ship hidden around here somewhere."

To Bart's complete surprise, Dr. Penwing nodded his head. "Come," he said eagerly. "I'll show you."

---

*A comparatively recent scientific concept is that all space is curved. Light rays, forces of gravity, sound and heat vibrations, time, everything—all adhere strictly to this *curved* dimension. Therefore, according to Dr. Penwing, anything in the straight-line dimension would be entirely invisible to anyone in this curved dimension of ours.—Ed.

BART followed him through the door at the side of the laboratory and out into the sunshine of a back yard that was enclosed by a high, board fence.

There was nothing in the yard except the close-cropped lawn. Bart, slightly bewildered, hurried along at the Doctor's side, his eyes scanning the lawn and seeing nothing.

"Look out!" It was Penwing who shouted.

Bart was in the act of turning his head to ascertain the trouble when he crashed squarely into something that was, as far as he was concerned, an immovable object. It had precisely the same effect upon him as if he had walked into a tree in the dark.

After shaking his head several times to clear it, Bart awakened to the fact that he was sprawled out upon the ground. He sat up and felt gingerly of a battered nose.

"What . . . what happened?" he asked when he found his voice.

"The space ship," said Penwing. "You bumped into it. I tried to warn you. . . ."

Bart looked slowly about the yard and back again to Penwing. His head was buzzing in confusion. "My eyes must be a bit bad," he said. "I don't see any space ship."

"Of course not," said Penwing. "The ship is built in a straight-line dimension. It would naturally be invisible."

Bart shook his head again and got slowly to his feet. He had a strange feeling that he was getting into a bewildering something that was quite beyond his depth.

He saw Penwing reaching out into the sunshine, saw his fingers clutch something and pull back. There, right in the sun-lit air, appeared an irregular splotch of blackness. The splotch was taller and somewhat wider than a man. Its sides, top and bottom scintillated in a shimmering, obscure light.

"The doorway to the ship," Penwing said. "Go ahead and enter."

Bart stepped cautiously forward into the blackness. For a brief moment, the whole world seemed cloaked in shadow. Then he found himself standing in a round, bullet-like affair some ten feet in diameter. Subdued light glowed from the walls.

He turned about quickly toward the incredible black opening just in time to see a foot and leg appear there. It was Dr. Penwing's foot and leg. Then the rest of Penwing stepped into visibility, turned and closed the door.

Bart slumped down on a leather seat fastened to one wall. He tenderly nursed the large bump that was quickly making itself known on the fore part of his throbbing head. He decided to rest a bit and then get up, quit the whole silly business and go see about getting a sensible job of some kind.

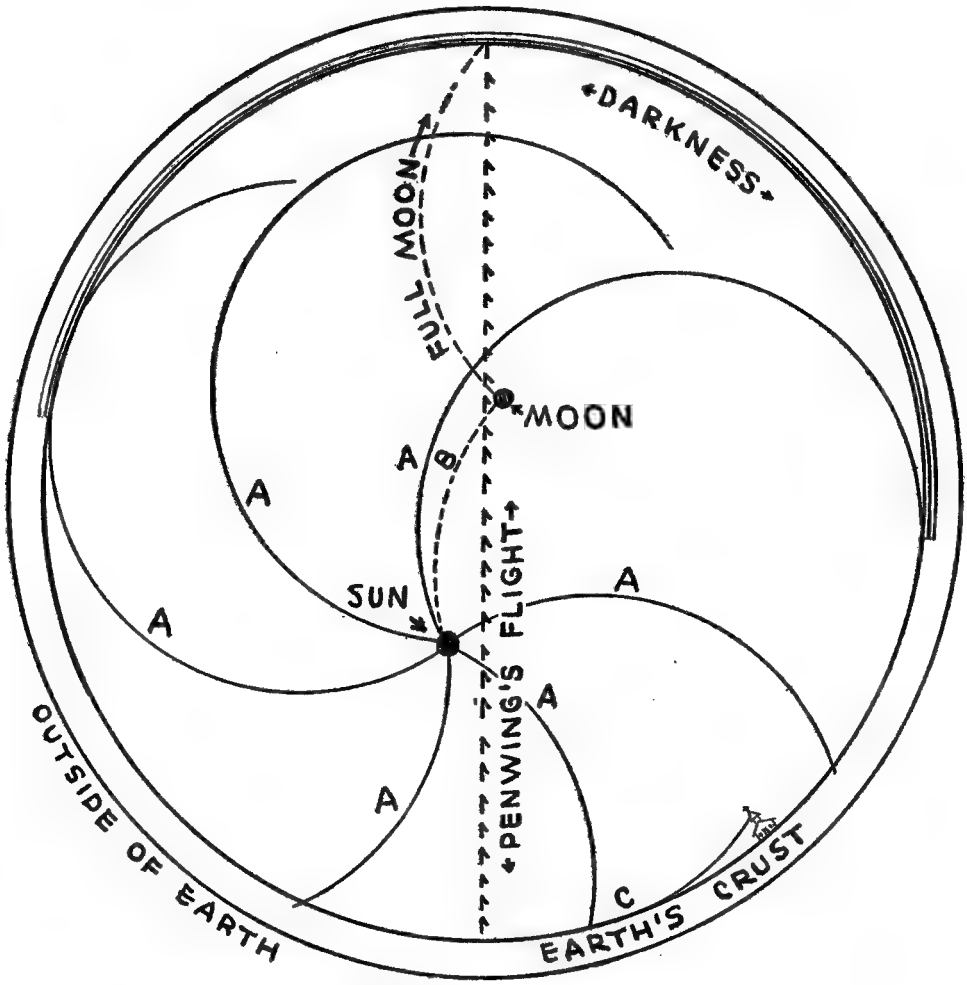
Penwing was over at one side of the ship with his back turned. "I have it all figured out," he said over his shoulder. "A ship like this, built in the straight-line dimension, will be able to fly in a straight line directly to the opposite side of the world with very little resistance. Gravity, flowing along the curved dimension as it does, will be almost negligible. Think what this will mean to space travel in the future."

Bart got to his feet. He felt suddenly giddy and nauseated. The fact that it had been twenty-four hours since he had eaten a last order of doughnuts and coffee did not help his personal comfort in the slightest.

His mind was fully made up. "I've had enough of this," he said, starting for the door. "I'm getting out of here."

Penwing was after him in a flash. "Don't open that door!" he screamed.

"I'd like to know why," said Bart.



A—Curved light-rays from the sun.
B—Curved light-ray reflecting full moon to dark side of earth.
C—Only the spire of the church visible at a distance—giving false impression of earth curving away convexly.

—— EXPLANATION ——

Due to Penwing's earth spinning on its axis, all space within the earth spins in a like manner. The space nearest the earth's surface naturally spins at the same speed as the earth, while the space further from the surface spins less and less until, near the vortex, it is not moving at all. (Suspend a bucket of water from a long string and start it to spinning vigorously. You will notice that the water nearest the inside surface of the bucket will soon take up the spinning while the water near the center of the bucket will remain unmoved.)

Light-rays follow this natural curvature of space. Rays from the sun reach that part of the earth nearest it, but the sun's rays curve back upon themselves before reaching the far side of the earth. In this way day and night are accounted for. The moon is seen on the dark side of the earth because the rays of the sun are relayed from the moon by a second curve.

Forces of gravity also follow the curvature of space. (Place a small object in the water near the inner surface of your whirling bucket. You will notice that the object "falls" to the side of the bucket in a decided curve.) Gravity, then, becomes but a simple centrifugal force.

Eclipses of the sun and moon, seasonal changes, the position and action of fixed stars and planets, and all other natural phenomena can be explained readily and simply; but such an explanation would require more space than can be allowed here.

It is easy to understand how our men of science, ignorant of the fact that they were living in a world of curved dimensions, made such gross errors in measuring sizes and distances of the heavenly bodies they saw.—Ed

"I'm getting fed up with this job." He clutched the handle of the door.

Penwing grabbed his arm. "No! No!" he shouted. "You can't open that door! *You can't open it because we are already several hundred miles away from the earth!*"

BART felt some elemental substance flow out of his whole being. It left him weak and almost speechless. "You . . . you mean we've actually . . ."

A sudden red haze of anger flooded through him. He gripped Penwing by the shoulder. "Listen!" he ground out. "The best thing you can do is to turn this ship around and head back immediately!"

Penwing squirmed away. "But that's impossible," he said. "The ship is built in a straight-line dimension and is flying in a straight-line dimension. Nothing can curve it from its course."

Bart groped his way through his own personal red haze back to the leather seat and sat down again. He was on his way to St. Paul island, just south-west of Australia. Of all the silly things . . .

"A certain number of rockets started us off," Penwing was explaining. "Our momentum will carry us just slightly past the vortex at the center of the earth. At that point the ship will automatically turn end for end and begin falling toward the other side. A like number of rockets will explode a few minutes before we land, to break our fall."

Bart said nothing. He just sat there holding his head in his hands while disquieting thoughts burned through his brain. What if Penwing's straight line was all foolishness? In that case, the ship, after reaching a spot high above the earth, would turn end for end and plunge earthward with the unwanted help of the second battery of rockets.

And even if Penwing's ideas were correct, there was still the possibility of crashing into the sun or the moon, or of reaching the vortex and sticking there. And, too, St. Paul island was a very small place in a very large sea. What if the ship missed it a mile or two one way or the other?

Bart glanced about the ship in search of a window; but there were none. They would have been of no practical value anyway, he decided. The straight-line dimension made all other dimensions outside the ship quite foreign to vision.

"You didn't happen to bring along a lunch?" he asked finally.

"Lunch? Lunch?" asked Penwing.

"Yes," said Bart. "It's something you eat."

"Why, no I didn't," stated Penwing. "My daughter usually takes care of things like that; but she was away today. That is why I was in such a hurry this morning. I wanted to do the experiment before she returned."

"And speaking of returning," said Bart, "have you figured out a way of returning from St. Paul island in case we get there?"

Penwing put his hand to his head and sighed. Then he smiled a bit foolishly. "Do you know," he said, "in my excitement to get started I forgot all about getting back."

Bart groaned audibly. He wondered if there were any jobs to be had on St. Paul island. Thirteen or fourteen thousand miles by water was a long way to hitch-hike.

"I suppose I have really forgotten hundreds of things," Penwing went on. "My mind is like that. I may have even forgotten certain basic factors in my hurried computations."

"It's a poor time to be remembering them now," decided Bart.

"But here is one thing I didn't forget." Penwing reached into his pocket

and brought out a small roll of bills. He thrust them toward Bart. "Your pay," he said.

Bart took the bills and counted them. One hundred dollars! That would buy a new suit of clothes and enough coffee, doughnuts and hamburgers to last until he could find a job.

Then he shook his head. "No," he said. "I can't accept that much money for doing nothing."

But Penwing insisted. "I want to pay you now just in case . . . well, just in case something happens. . . ."

Bart shoved the money into his pocket and sat there grinding his teeth behind tight lips. So! Even Penwing had doubts concerning the success of the trip—wanted to pay off to ease his own conscience . . .

BART opened his eyes. He realized that he must have been asleep; but it seemed that only a few minutes had passed since he was just sitting there staring at nothing.

He saw Penwing standing in the middle of the floor, watch in hand. Penwing's face seemed troubled and drawn.

"Now what?" asked Bart.

"The rockets," said Penwing. "They should have gone off two minutes ago to check our fall—but they didn't."

Bart was on his feet in an instant. "You mean we're going to crash?"

Penwing looked up at him. "I suppose so," he said. Then a certain look of sadness crept into his small, bird-like eyes. "I guess the experiment is going to be a failure," he added.

"Hang the experiment!" said Bart. "How do we get out of here?"

Penwing said nothing. He just stood there looking at the watch.

Bart had often wondered what the feelings of a man were just a moment or two before certain death. He knew now—just sort of a numb, frozen helplessness during which period everything stood still except the second hand of a watch.

Less than a minute left until midnight. And there would be a full moon. . . .

A faint, buzzing vibration from somewhere beneath his feet broke into his consciousness. "What's that?"

"It's the rocket fuse," said Penwing.

"Then we aren't going to crash!"

"The rockets should be on fully three minutes to check our fall," said Penwing. "It takes the fuse fifteen minutes to reach the rockets. By that time . . ." It was unnecessary to finish the sentence.

Bart never remembered exactly what happened during those intervening seconds. It seemed to him that he was already dead as far as his sense perceptions were concerned.

Then everything seemed to happen at once. The second hand made its last tick, the floor sprang suddenly upward and a roaring explosion blasted through the ship. Bart knew that the ship was cracking up and felt that he was flying out through one of the sides, flying out into space that was filled with the glowing light of a full moon.

BART was surprised to find that he was still alive. He opened his eyes slowly and found that he was lying on his back on soft grass, lying there looking up at the full moon.

Presently, something else came into his range of vision. At first he thought it was another moon. Then, after getting his eyes to focus properly, he saw that it wasn't.

There just above his head was the face of a young girl. Her golden hair was shimmering in the moonlight and she was smiling down at him. He thought it the most beautiful sight he had ever seen.

"Better take it easy for awhile," she said as he tried to rise. Her voice was as soft and as silvery as the moonlight.

Bart closed his eyes again. So this was St. Paul island! Well, maybe it wasn't going to be so bad after all!

Then a sudden thought struck him. Dr. Penwing!

He sat up quickly. Scattered about him were jagged pieces of the ship that had been jolted out of the straight-line dimension into visibility. Penwing was sitting on the grass with his back against one of the pieces.

"How . . . how is he?" asked Bart.

"Oh, Dad is all right," said the girl. "He was just shaken up a bit."

"Dad?" said Bart. "Your father?"

"Why, yes. I heard an explosion and came hurrying out here to find you and Dad sprawled out in the back yard with a lot of twisted pieces of tin scattered about. I had been wondering where he had gotten to."

"Then . . . then this is not St. Paul island?"

"What a silly idea!" She laughed pleasantly. "This is our own back yard."

"I just remembered," put in Penwing. "My watch always gains a couple of minutes every twelve hours. That's why we didn't crash any harder."

"Nuts!" said Bart. Everything had become suddenly clear to him. "We didn't crash and we didn't go anywhere!

"What really happened is this: The first rockets didn't go off at all; they just left us sitting here in the back yard for twelve hours. Then the second battery of rockets went off all together and exploded the ship—and here we are."

"Marvelous deduction!" applauded Penwing. "Marvelous!" he repeated. "But, of course, it's entirely wrong.

"What really happened, young man, is this: The first rockets sent us on our way as I had planned. We passed the vortex and began falling toward the other side. Then something went wrong with the second battery of rockets. Just as we were about to crash, they exploded the ship and sent us flying out of the straight-line dimension into our own dimension in time to save us from serious injury."

"And, in that case," said Bart, "we would be on St. Paul island."

"No," argued Penwing. "There is something else I had forgotten. It took us twelve hours to reach the other side and, due to the turning of the earth, it took this back yard exactly the same length of time to get there. Obviously, the ship and the back yard arrived at the other side of the earth at precisely the same instant."

"You can't prove it," said Bart.

"You can't disprove it," said Penwing.

"If you two will quit your arguing and come into the house," said the girl, "I'll fix you a hot cup of coffee and something to eat."

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WHAT'S WRONG WITH ROCKETS?

(Continued from page 39)

"if" symbol. In this country that symbol would have been $, in England it would have been £, in Germany it was *RM* . . . meaning cash.

Progress in rocket research has been stopped by lack of funds and for no other reason!

Although that situation was always just around the corner—in more precise language: "We'll now go ahead with experiment 124 and 125 which will need two weeks, if there is no money coming in during that time we can't go on with 126"—it was not so very noticeable at first.

But a few words of explanation where money came from at all are, perhaps, necessary. Professor Goddard is working with grants from the Guggenheim Foundation and similar institutions, but he is the only one of all rocket experimenters who ever was lucky enough to get grants. Most of the experimental work was done by societies founded especially for that purpose (to get money for experiments) and since it furthermore was the most successful of all and, finally, since I as its vice-president for many years have knowledge of the facts it might well be used as an example.

The Society had been founded in 1927, at first mainly as a kind of scientific debating club, devoted to discussions of rocket research, of astronomy and some allied questions and to the publication of a monthly journal to further interest in those problems. Very quickly a part of the chest of the treasury was set aside for possible experimentation. After only a few months it was decided that special efforts should be made to accumulate money for experimental research. But before the amount became worthwhile a lucky combination of circumstances helped. The UFA Film Company decided to take a movie based on a rocket story plot. Professor Hermann Oberth, then president of the Society, was called for supervision of the scientific details and finally some research money could be extracted from the publicity department. Meanwhile the membership of the Society had mounted to close to a thousand people which promised a backing after the movie episode in the life of rocket research was over. Thus experimentation was boldly begun.

The Society finally did have the money to continue the research. Gifts of money, and even more important at that time, material and machinery came from a few well-to-do members, a proving ground was furnished by the city and a few idealistic engineers decided to work without a salary—just for shelter and living expenses—until steady financial support could be created somehow. Influential people at that time said that they, or the firms they represented, would back experimentation if it could be demonstrated that liquid fuel rockets could outfly powder rockets.

The scheme worked very nicely for one year and could, with some strain, be made to work for another year, then everything collapsed at once. The reason was then a little hard to perceive and now, in the light of after knowledge, it is not hard to explain.

Paradoxically enough the organization collapsed because its research had been successful.

I think it was Pascal who said that human knowledge can be likened to a sphere, the more it expands the larger the number of points where its surface touches the unknown. Unfortunately that applies to financial demands also.

In rocket research an experiment that failed meant only repetition under slightly changed conditions. It may have failed only because a poorly made welding seems opened up or because one certain plug and hole was not exactly straight. The financial expenditure connected with such a repetition on the same scale is bearable.

A successful experiment is a different story.

It does not mean one other experiment, but several, usually many of them. It means material, fuel, new designs, oftentimes new equipment to handle larger pieces of work, new and more sensitive (and much more costly) instruments for observation and record. Thus it finally meant that the financial requirements could not be met anymore by the sources and by the methods that had worked fairly well for some time, especially since it so happened that business conditions were getting worse and worse.

When that work had just been started and was in the first stages of progress imaginative people in other countries tried to further rocket research by imitating the German Rocket Society. Most successful, by comparison with other groups, was the American Rocket Society in New York that owes its existence mainly to the personality and perseverance of its first president, Mr. G. Edward Pendray, who came to Berlin for a visit early in 1931. The American Rocket Society did progress to actual experimentation, it made a fairly large number of ground tests with rocket motors on a proving stand and three flights. But that financial vicious circle I outlined above caught it even more rapidly than it caught the German Society.

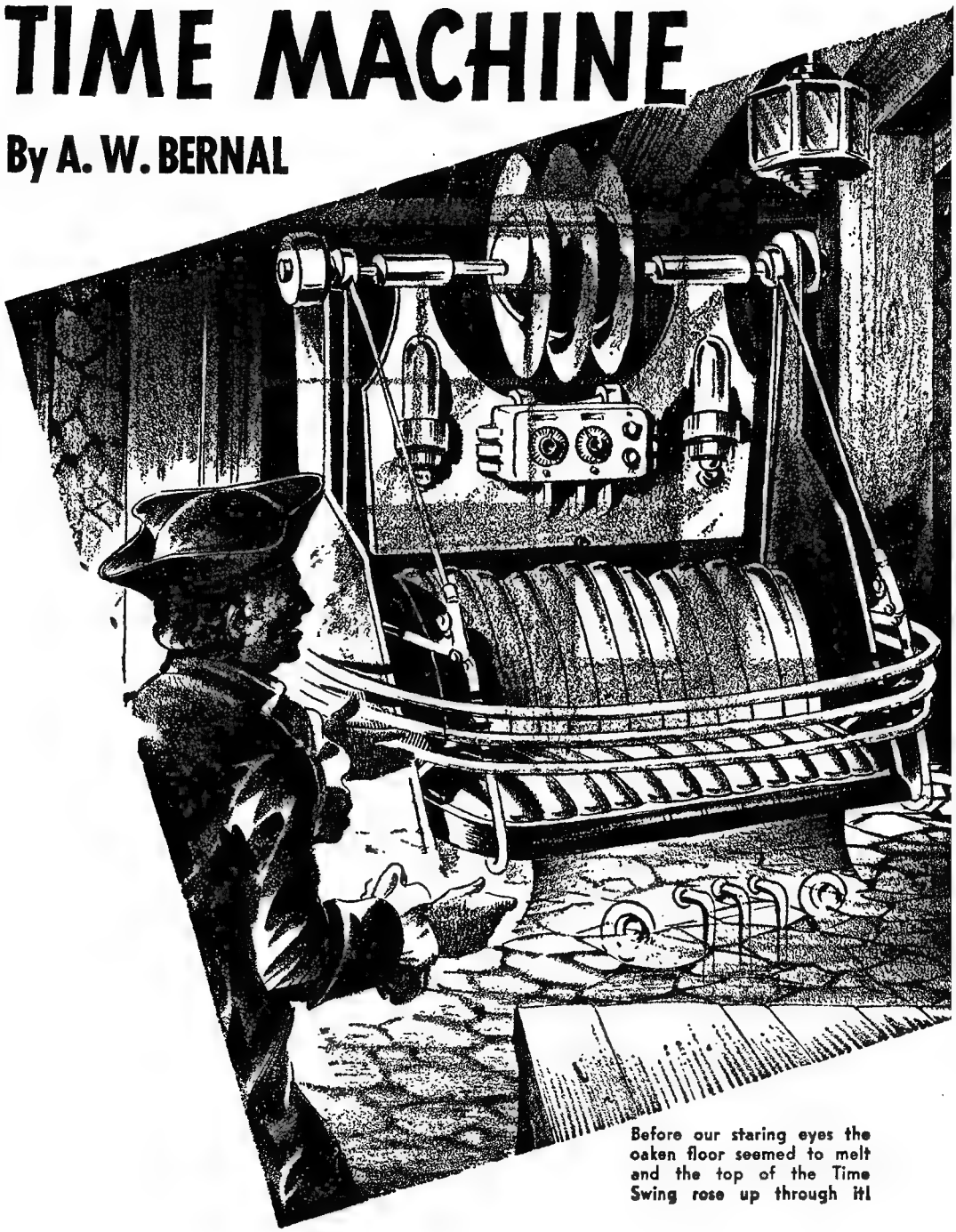
Another promising group, the British Interplanetary Society in London has just found its end due to the War, about three weeks prior to the completion of their testing stand.

I have to state, however, that I do not believe that a Society, unless backed by a few very wealthy and very generous members, has a chance to progress much further than the German Rocket Society did. Besides experimental work under the auspices of a society is usually harried by the fact that the work to be done is decided upon by committees. Discussion and talk might clear up doubtful points and though it usually does not solve scientific problems might at least clarify them to such an extent that they attain definite shape. Too much talk, however, resulted in the premature death of two Russian rocket societies.

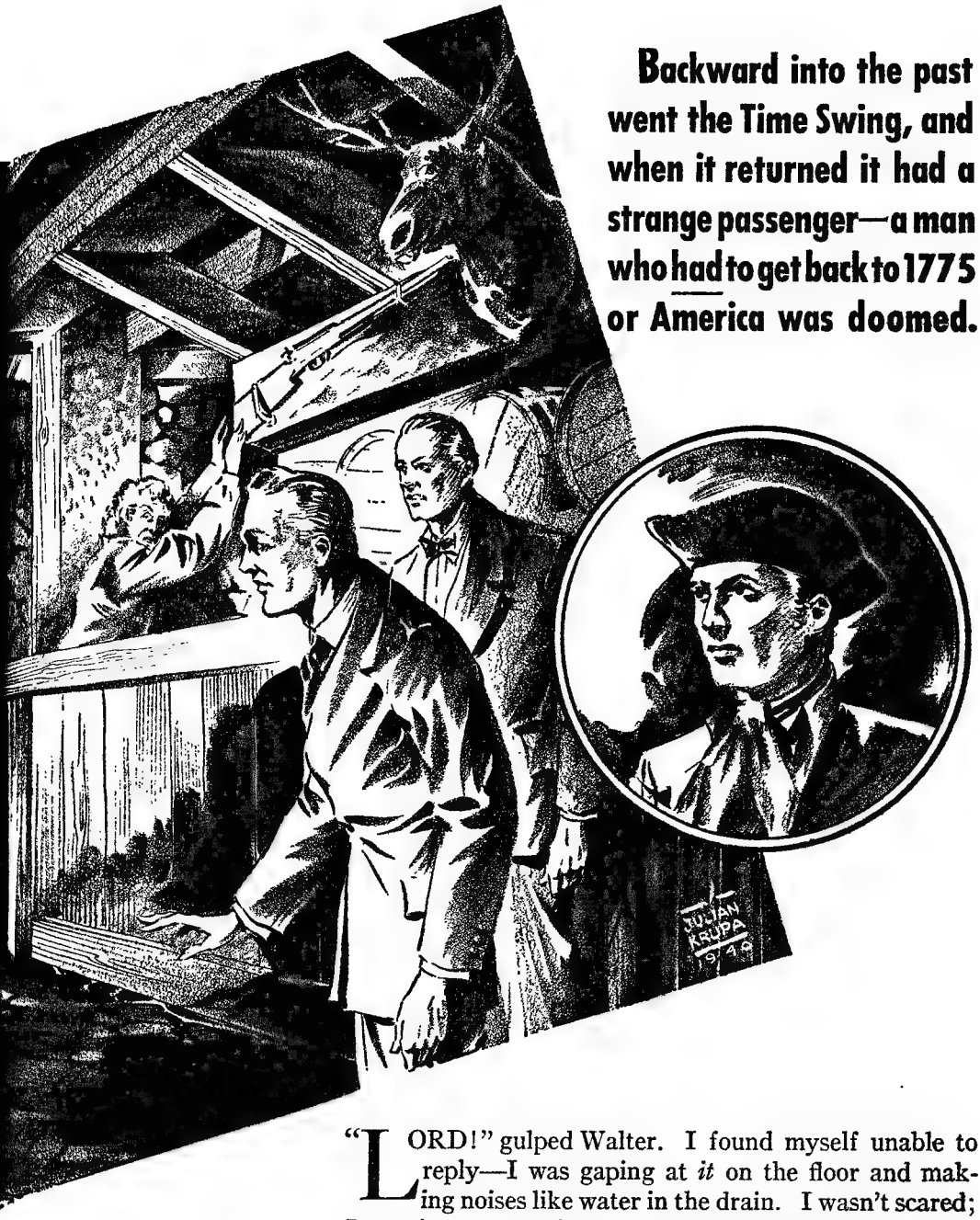
(Continued on page 127)

PAUL REVERE *and the* TIME MACHINE

By A. W. BERNAL



Before our staring eyes the oaken floor seemed to melt and the top of the Time Swing rose up through it!



Backward into the past went the Time Swing, and when it returned it had a strange passenger—a man who had to get back to 1775 or America was doomed.

"LORD!" gulped Walter. I found myself unable to reply—I was gaping at *it* on the floor and making noises like water in the drain. I wasn't scared; I wasn't even surprised. I was simply paralyzed. After a while I glanced up at Walter's sagging features. His eyes were big as light bulbs.

"Well," I managed, finally, "it works." I gestured at the floor.

"Yeah," exhaled Walter mournfully, like the last drink in the bottle. "Yeah. . . ."

I stared down at *it* again, at its funny three-corner hat, at the lacy ruffles around its throat, at the tight white

pants with grease spots on them. It was just like a masquerade—only Walter and I both knew it wasn't any masquerade. That was why Walter's hair stood out from his head like wires. That was why my heart was going like a punching bag.

It, or rather, *he* lay motionless on the floor, in all the dirt and scrap metal, his face the color of an uncooked biscuit. But he'd groaned, and so we knew he was alive—a little, anyhow. He had a nice sort of face, leathery from outdoor exposure, and he wore a silly white wig that was slipping off the back of his head along with his triangle hat. I could just glimpse sparse chestnut-colored hair beneath. And he had a little brown wart on the left of his nose, with two long black hairs pluming from it. The nose itself was three shades redder than a firecracker, with an alcoholic lace of tiny blue veins arabesquing through it to form a dainty design. All in all, he was a work of art.

And all this while the machine ticked on behind us, like a huge clock warming up to strike the hour. Walter suddenly seemed to grow aware of the dolorous tick-tick-ticking beside him, and reached out mechanically to shut the thing off. It stopped with a wheeze as he flipped a switch, and began to settle a few inches toward the floor.

I wouldn't have cared if it had settled right through the floor into the cellar—in fact, I more than half-expected it to. But it didn't. It just relaxed and stood there.

The man on the floor sighed heavily. Then he wrinkled his carrot nose till the little wart would have crawled right into his eye if it had only been open. But his eye remained clamped shut.

"Well, Walter, he's yours . . . what are you going to do with him?" I asked at length.

Somewhere in the dim, vasty labyrinth of Walter's brain, my question set off an alarm and he began to wake—slowly, though. "Yeah," he muttered, and the words clung to his lips like autumn leaves to an ash heap, "what *are* we going to do with him?"

"We?" I smiled. "*You!* Include me out—with bells on!"

"Hank—you can't!" Walter was getting panicky. "You're in this with me. You've got to help me now—he's coming to!"

"I know—that's why I'm going." But Walter was onto my arm like a drowning man, and after one look at him, I thawed. "Okay, okay, I'll stick. . . . Why don't we pick him up?"

"The whiskey, Hank—quick!" cried Walter.

"Who for—us?" I asked, reaching where I knew Walter kept the bottle. I nipped at it myself in transit. "This'll pick him up," I husked, passing it to Walter's trembling hand. "It'll burn out his vocal cords, but it'll pick him up."

"He's had a bad shock—he needs a bracer," Walter explained tersely, rooting the bottle in the man's mouth. Scotch vanished in giant gurgles, then the man's eyes flicked like little electric sparks. He looked fleetingly at Walter's worried face, said, "More!" then wrapped his lips around the bottle-neck again.

When the quart flask had been halved, he sighed and relaxed again, flat on the floor.

"He's all right, now," sighed Walter, almost happily. "I think he's just drunk."

And that was how we brought Paul Revere into the Twentieth Century. . . .

OF course, at first we didn't know it was Paul Revere; that is, we didn't recognize him by his looks. We hadn't hoped for such a distinguished catch.

Walter had explained everything to me. He explained and explained every time I went over to his shop with a new part —the only trouble was, he never quite made sense.

You see, I'm a mechanic. Oh, I putter around with electricity some, and I can fix an electric toaster or even a doorbell; but I'm not what you'd strictly call a scientist. Walter is, though, and that's how come we had the fuss.

Back about two years ago, Walter read a book, and well, he couldn't see why, if there was a Fourth Dimension, you couldn't monkey around with it. So he called me over one day and told me he had a machine he wanted me to help him make.

He just told me what he wanted and I fixed it up for him, or if there was no such thing I invented it. Sometimes it wasn't as simple as it sounds, thinking up ways to bend everyday iron and copper into fool whichigigs that would fit in the way Walter said they ought to. But he paid for all of it, and I did it.

Walter said things about no single instant of Time ever being lost. Time was really "an eternally conceived Present along which one focussing instant travels endlessly at uniform speed in one direction." Like a big road ready for use in all sections at once. One end of the road is the Past. One is the Future. The instant *Now* is like an automobile on this big road of Time. It started at one end, the Past, and is heading for the other—the Future—and wherever it happens to be, why, that's the Present.

Get it? Neither do I, but that's what Walter always kept saying to me.

But to get on with things, the only reason Time never got balled up was because some mysterious force kept the car of Now headed always in the same direction — Futureward — and once it passed a point it never came back again, never re-focused on it.

Well, Walter figured that if he could only build a machine which would reach into the Fourth Dimension, he could then reach *Pastward* along this roadway of Time. And if he could do that, then there was no reason why he couldn't send things into other times or bring things into our time.

This machine which Walter designed and I helped build took quite a while, and when we had it done, it would hardly stay together.

Well, the machine looked something like a cross between an oil well, a porch swing, and a Grandfather's clock, if you get what I mean. When Walter started the motor, the wheels and the seat would start swinging back and forth, and when it began to go fast enough, it would sort of blur and disappear.

At this point it was, according to Walter, "shifting gears" and revolving its direction into the Fourth Dimension. After a moment of this shifting, it would suddenly whirl into sight again and start slowing down, bringing to us whatever it had caught from the Time Walter had sent it to.

For some reason, it always went into reverse; the Future was somehow untouchable—and that's something that never bothered me a bit, even though it drove Walter nearly wild.

We kept trying it out, until one night the machine took my straw hat and brought back a bird instead; but I couldn't wear a sparrow, and I told Walter so. But he just kept gawking at the bird, watching it fly around, till it finally flew out of the window. "It's *alive,*" he kept yelling. "Alive!"

That same night Walter warned me not to say a word to a soul, but to come back again the next night and we'd try for a real catch. Real catch! *Wow!*

SO here he was on the floor of Walter's house, on the outskirts of Boston,

snoring away as though he were home in his own century. As I started to say once before, we didn't know he was Paul Revere then: to us he was just somebody with a pigtailed wig that didn't fit him and a pair of dirty breeches a size-and-a-half too tight.

We scuttled him up onto the table, where his big boots smashed a packet of vacuum tubes I'd set there just to make sure they would be safe. After a while then this thing we'd gotten sat up blinking stupidly from Walter to me and back again. The liquor Walter had funnelled into him was beginning to take full effect with the subtlety of a sledge-hammer.

He grunted, fumbling in a pocket for a watch bigger than my alarm clock. " 'Sblood! What is the hour, good gennelmen? I've work to do this night."

"How—how do you feel after your—trip?" asked Walter.

The fellow was squinting past the raven-tressed wart on his nose to study the face of his Big Ben. He was muttering to himself.

"Barkeep! Barkeep! A mug of ale and I must be off. Haste, prithee!" He fought himself into a sitting position, and belched manfully.

Walter tried to break it gently, like a salesman with his foot in the door. "Ah, Mr.—ah—what is the name, sir?" he limped, stalling.

"Name?" the aroma of good old English ale he sent my way was thick enough to bear a foam. "*My* name? 'S Paul—Paul Revere, by my powdered, pasted periwinkle! Name, thrice-blessed name of a gennelman and a—a gennelman, sirs." He smacked his lips. "And now, my ale, barkeep! Thunderation, but I must go!" He cocked one eye at us and belched again. "A thousand pardons," he mumbled, "a thousand pardons. Barkeep—saddle my good mount Brondelbuss, for I must be off and away! I tell thee there's riding to be done this night!"

"I beg your pardon, Mr.—Mr. Revere," Walter had begun—and then it hit him like a truck. "Ride? Revere? *Paul* Revere? YOU?" He nearly stabbed him dead with that long bony finger of his. "Lord, Hank, it's—PAUL REVERE!"

"S-s-sh!" Paul Revere clapped a big hand over his loose lips, wildly waving the other at Walter. "S-s-sh—don't shout m' name. I'm on serious business for the colonies—secret business!"

"For Pete's sake," I yelped, "he's a G-Man of yesterday!"

But he ignored me and Walter jabbed me angrily in the ribs.

"Prithee," rambled on the man out of the Past, "prithee, keep m' name quiet, or you'll give me away to these common tipplers here." Then, picking up my tool-kit from the table and trying to peer in it, he roared: "By my saddle-girth! Is my tankard empty yet?"

I saw my chance. "S'cuse me, Mr. Revere," I put in, handing him his wig and hat, which had fallen off his head when we'd rolled him onto the table, "but here's your wig, sir. And maybe you can tell me something of a brand new straw hat, size—"

"Hank!" Walter flagged me down, as Revere put his wig on backward so that its pigtail draggled into his mouth. "It's Paul Revere himself, don't you understand? Just think, Hank—the 18th Century—one hundred and fifty years—and he's here with us, alive and breathing! Paul Revere out of history—right here with you and me!"

" 'S'LIE!" thundered Revere, banging my tool kit on the table with a smash. "I don't come from—from where you said, at all. I live right here in village, an' my credit should be good for one li'l smidgeon of ale. By my

powder horn and candle-snuffer, though —I'll never come here again unless I get some service! I've riding to do this night, I tell thee!"

He rolled off the table onto his feet, immediately sagging as if someone were pulling him at the pockets. Walter gave him a shove and flattened him on the table again.

Walter was almost hysterical, his eyes dancing as he looked at the calendar on the wall behind us.

"Hank—*look!* It's the eighteenth of April!"

" 'Struth, 'tis!" boomed Revere. He grabbed his wig and swung it exultantly by its pigtail. "April the eighteenth, '75, and Paul Revere'll make history tonight. History, I say—one if by land, two if by sea. . . . Another ale and I'll have eyes like a hawk! Barkeep! 'Swounds, where *is* the poltroom?"

"One if by land—" I croaked in surprise. "Hey, that's in the poem!"

"Twah!" Revere howled, wriggling his head back into his wig, now turned completely wrongside out. "Glory be, good gennelmen, and I swear a merry oath—'tis no poem. 'Tis a song! One if by land—two if by sea—I've a tankard of ale that's due to me! A pox on us all—where's my ale?"

"It's getting close to midnight," said Walter suddenly, his eyes wide.

"Midnight! Too late for ale—history's in the making. One if by land, two if by sea—and Revere'll send the alarm ringing through every Middlesex village from Charleston to Lexington and back again!"

Paul Revere notched his belt. He shot his feet at the floor with a sudden flurry of determination. "Must go," he boomed.

"Well, if you gotta go—" I began, but Walter butted in.

For the past couple of minutes, Walter had stood with his mouth open and his face a complete blissful blank. But now he suddenly quivered all over, grabbed Paul Revere by his coat sleeve, and moaned: "Hank! Hank! We can't let him go out of here—what'll we do?"

"What's this?" Revere hooted, regarding us with his bloodshot eyes. "Brigands in the tavern? Rascals, let me free!"

He jerked his arm loose with a twist that buckled his legs under him and he finally compromised by sinking to one knee. "Whew," he muttered, eyes closed desperately, "I'm not so steady as I might be, with what I've to do this night. Help me to horse—strap m' feet to the stirrups. Blast my boiled buttons, I've drunk too much for duty!" He sighed, and sank a little further toward the floor.

Walter was still just staring at him. "Hank," he pleaded, turning my way, "don't you get it? We've got to get him back in the machine right away! Don't you see? We've botched up history, Hank. This is the eighteenth of April —the night of his famous ride. The British man-of-war Somerset is on her way into the Charles' River this very instant!"

"Huh?"

"Oh, you dope!" Walter exploded. "Can't you see that if Paul Revere doesn't get back to his own Time to warn the colonists, the American Revolution may never come off?"

"HUH?"

That was when it hit me. "But, Walter, that's old stuff—it's been done and forgotten a hundred and fifty years ago!"

"Don't be a mucklehead! Can't you grasp the fact that the Past is just as real as the Present? Use your head, Hank. Look—Paul Revere, in '75, on the eighteenth of April, was all set to make history as planned, wasn't he?"

"Yeah, but—"

"Shut up. Now, all at once a couple of blamed fools like us reach into the Past where we have no business, and snag Revere out of his own Time and yank him into our own year—1940!"

"Yeah, but—"

"Shut up. Now, here's Paul on the floor of our room in 1940, half-crocked on ale and the Scotch we loaded him with a while back. How d'you suppose he's going to be in two different centuries at once?"

"Well, he's here now—"

"So he can't be back in '75 where he should be! And if he isn't back in history where he belongs, he can't warn the minute-men that the British are coming. And if he can't do that, General Gage on the Somerset will land his troops and probably wipe out the American military supplies at Concord and cripple our forces like they intend to do. *And* they'll capture John Hancock and Samuel Adams, too—they're part of what Gage is after! And if that happens, then the Revolution'll be over before it gets going, and the Redcoats'll win and retain America as a British colony, and then— Oh, Hank, we've gone and bungled things so the whole history of our nation will be remade in a single night, and a hundred and fifty years of American freedom will be blotted out—be non-existent."

"Walter," I tried to calm him, "now, Walter, it can't happen that way. What's done is done—history is history, and— And, look, Walter! Maybe it'll come out all right anyway!"

"*Maybe,*" cried Walter, a wild gleam in his eye, "but we don't dare take that chance! Hank, we've not a second to lose. We've got to get Paul Revere back to his own time before the British ruin everything!"

So there we were.

It was half-past ten. In a little over an hour back there in that other world where Paul Revere should have been, the Redcoats would be sighted by Paul's buddy in the belfry and the signal would be flashed to Revere himself, on the other side of the river.

And it was up to us to meet a crisis which occurred a hundred and fifty years before we were born!

How we went about it I don't know.

While I worked on the machine with every tool I had, Walter was in no less of a dither pouring black coffee down the throat of a very much bewildered Paul Revere. By dint of much shouting and repetition, and the aid of a bucket of cold water in the groaning hero's face, Walter was finally able to bring him to the realization that something was definitely haywire. We raced like madmen against the ominous ticking of the wall clock, fighting against each second that drove us that much closer to the moment when the Old North Church belfry should gleam with a lantern light back there in '75.

FINALLY I wheeled, "Ready!" I wrapped my wrench around the last loose nut. Sweat cascaded down my face in a regular Niagara, but I was done, and it was just past eleven o'clock. "Throw him in the cage!" I panted.

Walter was busy all this time going over the situation endlessly with Paul Revere. "Don't you understand?" he moaned hoarsely. "It's our fault. . . . It's the Fourth Dimension."

"Fourth Dimension? 'Sblood and pantaloons! Could you repeat it all just once more, citizen?"

"It's no use," Walter wept. "It just isn't any use!"

"*Looky!*" I shrieked now, getting almost as mad as I was scared. "This is 1940. You're from 1775 and you must get back. See?" Then I gave him a

good hard shove toward the cage of the Time Swing, and, "Now you get the drift, buddy," I finished, "we got no time to lose. Hop in!"

"But, good gentlemen—" He was getting a little of our own anxiety, now. Who wouldn't, with two bleary-eyed and chalky faces gaping at him. Paul Revere was cold sober now—cold sober and plenty panicky.

"You—you don't mean the Redcoats have already come?"

"You see, *Einstein*—" Walter began.

"Skip Einstein—" I shoved Walter away. I jerked Paul Revere to his feet by the lapels of his funny coat. "Now, squat!"

He squatted. Huddled there in that big metal cage, surrounded on all sides by wheels and pistons, his eyes were popping with an uncomprehending fright.

"How'll he find out what the British are going to do?" Walter turned to me.

"For Pete's sake — tell him!" I yelped, busy wrapping Revere's numb fingers around some arm-supports on the sides of the cage. "Now hang on tight so you won't spill out somewhere in the Gay Nineties." Then to Walter again: "Tell him—you know how it all came out! Tell him—and for God's sake, *throw that switch!*"

Walter's eyes lit up. "We know what happened, don't we? By sea! Two lamps, Revere—that's the signal! *Two,* man, d' you understand?"

Paul Revere was nodding so hard his wig slid off into his lap. "By sea—" he was echoing, like a school kid, "two lamps in the Old North tower. By sea! I knew it!" His face dropped again. "But Brondelbuss — what have you done with my horse?"

"Sit still! Walter—that *switch!*"

Walter leapt at the control-panel, his hands buried in switches up to his wrists. "Close your eyes and count twenty;" he sputtered, "then grab the first horse you can find—and light out for Lexington!"

"But—" Revere began. . . .

Then Walter slammed everything home.

THERE came a wheeze, a jerk, a whirring thump, and the Time Swing trembled into life.

Then Walter howled. "Grab 'er, Hank—she's tipping!"

Faster and faster, and the old machine was beginning to groan and strain forward like it always did. I made a jump for her supports and hung on, the nuts and bolts I had so laboriously tightened a minute ago hopping about me like popcorn.

Then the gear-shifting began. Our anachronistic friend was now nothing more than a bluish blur with a frightened look running across it, slowly creeping off at right angles to everything else in the universe—climbing into that infernal Fourth Dimension.

Walter gulped. "I—I think it's working."

The next second I thought he'd drop dead. Two of the wildly stomping beams of the rocking oil-well support of the Time Swing tore unexpectedly loose from their moorings, and the whole kaboodle of machinery waltzed in a crazy circle right across the room, leaving me holding about twenty pounds of loose ends in my hands. I stabbed Walter with a look and whirled back.

The seat in the cage was empty.

"It's busted," said Walter, dully.

I couldn't believe it myself.

There came a long pause.

"We'll soon know," Walter said quietly.

I didn't feel any too good all of a sudden, either. After all, even if my forefathers didn't come over on the

Mayflower, I am an American, and proud of this Depression-bitten promontory of ours. And right at this moment I loved America, and I hated to think that Walter and me had tossed her right smack in the laps of the Redcoats back there on that fateful night a century and a half before either of us was born.

"Hank." If there had been a deep pit under the floor of Walter's shack, that is where his voice would have come from. "He didn't make it. The Swing didn't hold long enough. He couldn't have made it. We threw him out in some unknown year—threw him away forever. . . ."

I looked at the clock and shook my head. "He'd have had time to make it, too. Ain't quite eleven yet. Had till midnight, didn't he?"

"Yeah," mourned Walter gently. "'Twas twelve by the village clock,'" he quoted sadly, "'when he galloped into Medford town.' Yes—if only the machine had held, he'd have made it in good time." Walter sighed.

"Yeah. And then we'd still be American citizens, huh?"

"YES, Hank." He was slowly shoving parts of the machine back together again. Absently, I chipped in with my wrench on a few bolts.

"We lost the Revolution, huh?"

"We will—at dawn, I guess, Hank. Throw me that bundle of wire, will you?"

I tossed it to him. I tightened something more with my wrench. "I wonder if he didn't make it, though," I said.

"No, Hank. I'm afraid not."

"What'll he do, Walter, wherever he is, huh?"

"Go on being an engraver, I suppose. That's his trade, you know—engraving. He—hey, listen! What—what's *that?*"

"What?"

"That!"

I heard it all right, only I didn't want to.

"Listen, Hank."

I listened again. I heard it again. I moaned.

"Hank." It was a whisper, deep-hidden in some frozen crater of the moon. "Hank . . . we're mad. D'you know that, Hank? Mad as loons . . . !"

From faraway outside it had come—that thudding and hoarse shouting. From faraway down the road. Then nearer, nearer it came, until we could make out words—words being cried out in a wild voice.

Walter and I were staring at each other, petrified. Then Walter broke. "That voice—" he choked, "can it be—?"

It was a barroom baritone, and it was bawling: "The Redcoats are coming . . . up, up, and to arms!"

But I couldn't believe we were insane. "Walter," I babbled, "is it—can it—?"

"No—Good Lord, no!"

But all the time the hoofbeats grew louder, and so did that hoarse voice. Together they came thundering down the road toward Walter's place while we held our breaths. The hooves were thudding away just outside now—a moment more and they'd be past. But no—they stopped!

"Whoa!" crackled a human klaxon, just outside our door—"Whoa, I said, confound it!" That voice was unmistakable—I could almost smell the ale come floating through the door when it spoke. "Whoa, plague take thee!"

Then out of that night and into our shack thundered our Paul Revere. The door slammed open with a crash and a burly figure in lace shirt and white pants stood limned against the darkness, waving its triangle hat like a

drunken college boy. "To arms, good people! The British regulars—" But they never came in that particular sentence. It rattled away as though someone had stuffed Revere's big mouth with pebbles. I could have tightened up those bulging eyeballs with my wrench, the way they popped out of their sockets.

"Odd's blood, gentlemen, is it *thee* again?" He was appalled.

"How the devil did you get back here?" Walter shouted.

Revere made no reply; he simply wheeled and dashed for the steps.

But Walter and I were right after him. "Get him, Hank," screamed Walter, spilling down the steps, landing a-sprawl in the dirt. I leapt over his rolling body and dashed after Revere. Before he even got near his horse, I had him around the waist.

"Pox take thee, let me be! What devil's potion have I drunk this night to have such visions? Let me go, quietly, I beg of you, sir Devils."

But Walter had now picked himself up. "It's only us, Mr. Revere—there's been some kind of an error." Judging from his agonized expression, this was scarcely good news to our captive, and he trembled like a leaf.

"Prithee, good demons," he was pleading like a child, "only let me go."

Then Walter let out a yelp. He dangled a wrist before my face. "Let's step on it, Hank—we've still half an hour to midnight! There's still a chance!"

Between us we managed to drag the big hulk inside, though we had to do it by his bootstraps to keep him from bolting. As it was, he writhed in a frenzy of despair and fear, clinging for a full minute to the doorknob, swinging there as if it were the handle of the Pearly Gate itself, before we could pry him loose and shut the door.

"No, no, good gentlemen, I beg you!" he blubbered. "I prithee, pretty devils, let me be!"

"Can it, boy," I barked. "It's just a bad dream, see? But if you don't sit still, I'll wrap this monkey wrench around your ears. Get me?"

Walter flew around the room. I thought he had a dozen hands, the way he was working over that control board and jamming do-businesses into the stomach of our battered machine.

"BE ready in a minute," he was rattling. "Put him back in the cage . . . I hope we get him back in time, I hope! We still got ten minutes . . . Keep him still, Hank! Mullivaney's nag, he must've had, eh, Hank? Hand me that insulator. Wasn't in the Past at all, just thrown horizontally half a mile along the Fourth, through solids and all. . . . I hope we got her set right—but we got to take the chance 'cause we're lost anyway, if we don't. . . . Ah, now, Hank! Hold him steady—we're ready to shoot!"

"Revere," I breathed, "fly away home! You get the first nag you see—"

"What, good sirs—" I swear I could almost see tears in his rolling eyes—*"again?"*

"Yes—you want the colonies to get the jump on the Redcoats, don't you?"

"I do, by God!"

I'll be darned if he wasn't a real American, too!

"Great, then!" crackled Walter. "In exactly two seconds you'll be back in the Revolution—"

He stopped, like a phonograph running down. I felt my own heart clanking into my boots.

For, with one wild cry, his face turning ocean green, Paul Revere had melted out of my grasp and slipped prone on his face in the cage of the Time Swing. The rocket-trip through the

Fourth Dimension and our mauling had been too much for his cargo of mixed ale and Scotch. The Man of History was out!

And once more the hungry hands on the clock began eating up our precious minutes!

We had been through all this once before tonight, but this time we were up against a stupor which would have done credit to Bacchus himself! It seemed like centuries, the time it took to get one of those tightly-clenched eyes open again—and yet it seemed that those clock-hands were romping over toward midnight like race horses on the stretch.

Finally, with less than six minutes to go before Zero Hour, Paul Revere groaned and tried to sit up.

"I—I'm not—not well," he whispered, in a masterpiece of understatement, the ocean green of his face ebbing and flowing like a tide.

"Oh, Lord—*try* to get up!" wept Walter. "Try, Revere—you *must* try!"

"Five minutes!" I screamed at them both. *"Five!"*

But screaming and moaning and even trying were all no good. It had been a feat of sheer superhuman will for Revere to open that one eye—he had shot his bolt. He was through.

"Hank," Walter's restless syllables kept running on and on, "Hank, we got to get him up. Hank, if we only had a few minutes more, Hank, we *got* to—"

"*Four* minutes to twelve," I heard myself groan. Then I shut up. Walter had got a solution. I saw it in his glazed eyes.

Two seconds he spent in unhooking the control panel from its moorings. One second more he took to plug in a long cord in its place, with a complicated gadget from his desk dangling from its end. Another second and he had shoved me clean off my feet into the swaying, rickety cage, smack on top of our prone hero. And then, with a chortle that must have been heard round the world, he plunged home a button-series on the gadget he held in his hand and leapt on the bodies of me and Revere.

The cage began to quiver.

"Hey—" it was my voice, but I didn't know I was yelling. "Hey—the machine is moving!"

Walter had a funny grin on his face. "I know," he said, rolling off me and sitting up. "You and me are taking Paul Revere *home!*"

I nearly fainted dead away. Because we were!

I HAD trouble in focusing my eyes: they persisted in trying to look about three ways at once. Then they drew blank for what may have been a minute or one hundred and fifty years. And then we stopped with a thud.

I smelled dirt. I rolled off of Walter and struggled to sit up. The landscape whirled about me like a merry-go-round gone mad. Before I could see clearly, I scrabbled around with my fingers and felt grass below me. Anyway, I kept on telling myself silently, we're not in the house.

All at once, with a jolt, it all settled down. On a patch of greensward, before a lighted old barn of a place, sat Walter and me. Beside us lay a very quiet Paul Revere. One look at that house before us told me we had made the trip all right; nothing like that shack was ever built in Oakville!

"Well," breathed Walter, awe in his voice, "how does it feel to be in good old '75, Hank?"

I didn't answer. I didn't feel like it.

"Come on—bring the hero."

Walter had climbed to his feet and was staggering off toward the lighted

house, which bordered a road of sorts. I squinted through the darkness of a moonless night and saw that Walter was reeling in a long piece of cord. I remembered that he had thrown the coil of it into his pocket back—back there, before we started. He was winding it in, and I figured he must be looking for the crack in Time we had slipped through—for on the other end of that precious cord was the Time Swing and 1940!

I helped Revere to his feet, and we plodded unsteadily after Walter. He was heading straight toward the house ahead of us, reeling in wire as he went.

"Be with you in a minute," he called over his shoulder to me; "but if we lose this cord, we don't get back home!"

"Take all the time you want, pal," I urged. Saving America might be pretty vital, but so was getting home again.

As we neared the building across the road, I made out a sign swaying above its door: INNE of Ye FOWLE & SPITTE. I could tell by the sudden pulse of life in the hulk I was dragging behind me that Paul Revere had caught that sign, too.

"Your local tavern?" I asked, and he nodded weakly. I began to worry about the Redcoats again. "Your horse must be hereabouts, then, eh?" I went on.

"Here is where I stood," he managed thinly, "when your incantations found me. Yonder stands Brondelbuss . . ."

"Some horse," I said, spotting the plug as he spoke; and then I turned to call out to Walter. "It's just about twelve by my clock. What do we do now?"

At my words, a sad-hearted hound bayed mournfully at the lumpy moon above us. In the still night air, the braying must have carried for miles.

Walter was holding up a hand. "Listen to that, Hank!" he breathed. I saw he was pretty awed by it all. "That dog brayed that way in the middle of the night a hundred and fifty years before we were born! Think of it, Hank! We've rolled back the years to Boston, 1775! Boston—a little village in a brand new continent—with its few hundreds of souls all asleep around us . . . men and women who have been dead for more than a century! But tonight, Hank, thanks to us, we know they are alive again!"

I decided it was time we did something. I felt creepy. "Snap out of it, dreamy," I said, shaking him. "If you got that cord safe, let's spread the word about the British before it's too late."

"Lord, yes!" gasped Walter. "I'd almost forgotten our mission, in the miracle of just being here. Old *Boston*, Hank! 1775!"

He was in a most wonderful mood suddenly, fears and doubts gone like nothing. "Maybe this inn has a road map," he cracked, pushing open the oaken door.

I followed and Revere wobbled along behind me. A thick smell assailed us that was no different than that in any gin mill in 1940. Walter forged on ahead, like a man in a dream.

"HO!" rang a basso voice from behind the stout, reeking old bar. "Revere, I thought ye'd slipped anchor to perform a duty this night!"

Revere did not reply. He left me to roll over to a nearby table, where he plunked himself down limply, his head held between his hands.

"Revere," the giant behind the bar was booming again, a note of anxiety and suspicion in his voice, "Methought ye'd be in Lexington by this. Who are these—men?"

Walter had followed a line of electric cord straight across the smoky, candlelighted room, saying not a word to anyone. Then, while the bartender stared,

and I stared, and Revere didn't even look up, something very peculiar occurred.

Right smack at Walter's feet there came a hissing and a whirring—and before our staring eyes the thick oaken planks of the floor seemed to melt, and the top of the cage of the Time Swing rose up through it!

It was uncanny, to say the least. And not a soothing sight to the monster who owned the joint! The bartender reached up for a huge blunderbuss high above the bar, and even Revere got to his feet.

"By my tops'le and spanker," croaked the barkeep, slamming the gun on his bar, "what in Satan's own name is going on over there?"

Walter, sneezing from the dust which was still settling in a cloud about that end of the big room, answered. But it was me to whom he spoke. "Look at that, Hank, there's a funny one for you! After *we* stopped, the cage moved on—through the Fourth Dimension—a few additional space-seconds. The last couple of yards of this cord just materialized through Time-Space. Wonderful!"

If this was gibberish to me, it was worse than that to the barkeep. He looked sternly at Revere and bawled angrily: "Revere, you sot! Who are these friends of yours who come wrecking my inn? I thought—"

But Revere interrupted him with a wail: "They are not my friends! They're not men at all—they're wicked demons conjured up by some British magician!"

In a moment of stunned silence that followed, I began to sweat cold drops as big as grapes. You could scarcely blame Revere for thinking we were evil spirits summoned to fight against him by witchcraft, after all the hard luck he'd had with us and our manufactured miracle. But it did put us in a bad spot. One peep at the size of barkeep convinced me he could rub me and Walter together until we were powder. And by the look on his face, I knew he wanted to.

What with machinery which would not yet be invented for a hundred years, popping up from his cellar—I could readily believe he thought we were exactly what Revere had called us—good old-fashioned, New England-hatched demons!

"Walter, never mind the Redcoats," I whispered, "pull that cord and let's get home!" Home! What a wonderful word!

WALTER, unheeding, said, "I—I know this looks a bit unusual, but there is a national crisis tonight, and we —we came over to help. . . ."

"Stow it!" Barkeep was in an ugly mood. He strode across the tavern floor in three steps. The stout oak planks creaked beneath his weight. He picked up a small tree-trunk and slammed it into place across the door, barring us inside with his wrath.

"Revere," he grated like the roar of a bull, "tell me this. Be ye drunk or drugged?"

"Drugged," Revere managed to grunt, without lifting his head from the table. "Demons—and they drugged me. I swear it."

Barkeep put his heavy hands on his hips and glared at Walter and me. He spat into a cuspidor with venom and force. He hoisted his pants, and I noticed that, as his arms flexed, his muscles bulged tightly beneath his shirt.

I forgot all about the colonies. "Walter, let's you and me go home!"

"Stow it!" Barkeep drowned me out. "Hark, ye slithering things in the guise of men." Slowly he began rolling up his sleeves. "Now, be ye men or be ye

demons, I know by the work ye've done tonight that the pair of ye are British-sent scum. Ye've kept matey here from his ridin', and now ye'll answer to Jim Toddy for it."

And then he lowered his thick head and ran for us.

I leapt for the cage, which stuck out of the floor like a cellar-door, yelling: "Walter—he thinks we're trying to help the Redcoats! Come on!"

But Walter never budged. Something came over his thin body. He tensed, stiff as a ramrod. Then Toddy lunged past the spot where a second ago Walter had been standing. I had never seen Walter move so fast. He had waited solidly as a rock until the man's rush closed the distance between them. Then he had whipped aside like a toreador, and stuck out his foot. And the barkeep flashing by, roared like a bull and went down with a crash that shook the ground.

I looked at Toddy's face as he picked it off the floor, and ducked my head. But I had to raise it again to see how Walter was going to die.

Walter stood firm: white and pale, but firm. Toddy roared in at him, seized poor Walter in a bear's grip and his baboonish thumbs went round Walter's throat. But Walter, though blue with pain, was not licked yet. He whipped a hand behind him, seized a bottle by the neck.

Crash! Spangles of glass shot out like sparks. Toddy shuddered, shook his thick head, and went sprawling onto the floor with a sound like thunder.

Walter struggled up, color coming back into his face with every pump of his pounding heart. He clutched the bottle neck, now all that was left whole of his make-shift weapon, and stared at the huge man at his feet. There was no need for further action, though. Toddy was prone among sawdust and glass fragments; the blow had removed him from combat.

"How—how did you think of doing that, Walter?" I managed to ask, climbing out of the cage again.

He shook his head, wiping his brow with a shaky hand. "I don't know. I only thought of how mad I was that this big lump should try to stop us from our duty. . . ."

"Come on, man," I said. "If it's duty you're after, let's get some horses."

Walter was hiding the precious coil of wire which held the switch of the Time Swing in its end, when suddenly there came a thumping at the door. I froze where I stood.

REVERE had been dazedly trying to pull himself together. Whether he saw the fight, I don't know. But now he was staggering over to the door, fumbling to open it.

"Don't open that!" I cried out.

He ignored me. "Just a moment, dear," he was saying, "I saw you looking through the window." He struggled to hoist the bar from its slots, and then lifted up the latch, just as the pounding began again. Revere fell back, as the door swung open, and began feverishly to straighten his messy clothes.

It was a woman.

"Oh, ye did see your wife through the window, did ye now, ye old reprobate?" she cried, bustling up to Paul Revere, oblivious to the rest of us. "Ye told me ye were out on civic business, out on patriotic duty, didn't ye, Paul Revere? And where I find your horse tonight I've found the beast a dozen times—hitched before Jim Toddy's saloon!"

"Listen, dear," Revere explained, frantically dusting off his wig and wriggling into it, "I was delayed by these—"

Mrs. Revere turned and saw us. Her eyes narrowed. "So! You're the min-

ute-men, I've heard tell about! Look at ye, now! Where did ye find those oddments ye are wearing? Drunkards, draggin' my husband off, making him—"

"Get out of here!" I yelled, all at once. "Scram! Don't any of you old-fashioned idiots realize what's happening? Do you think we have any time for family quarrels?" I came up alongside Revere's wife, my eyes probably popping, if they gave the slightest indication of how I felt. "Hit the road!" I yelled.

The poor woman took a step back, then another, and with a sudden cry, ran out of the place.

"Get a horse!" I turned on Revere viciously. "Go out and get on some kind of a horse. You can't pin the failure of the Revolution on Walter and me! Get out and ride, you dang-blasted son-of-a-hero, before I—"

And just then, Revere broke down. He laid his head on a table and almost cried. "Gentlemen, or demons—whatever ye may be—I cannot. My wife will never forgive me for this. *You* do what you can to help the colonies, God protect them! But *I'm* going home to explain matters to my wife!"

It was precisely at that instant that I heard Walter's voice beside me, like the sound of a ghost.

"The dawn!" His lips were barely moving as he pointed through the shuttered windows to a grey streak across the horizon. "It's almost morning!" Without another word, he went through the door, staggering, and sank limply down on the stoop.

I stood in the tavern for some minutes, listening to the stentorian breathing of the still unconscious barkeep, and the sobs from the drunken Paul Revere. They were the only sounds in a vast quiet.

I went out and sat down beside Walter. I couldn't understand what had happened, but some things I knew. We had wasted one of the most historic nights in Time, trying to manage a drunken hero, fighting a belligerent barkeep, and arguing with a shrewish housewife . . . and in that time, the magnificent ride that Paul Revere should have made—had been forgotten!

"We must have become mixed up in our calculations somewhere," Walter was saying, softly. "We probably didn't even get here until it was too late."

"There isn't anything we can do?"

"No."

A moment later, Walter suddenly leaped high into the air. *"Hank!"* he screamed. *"Hank! I've got it!* We'll take Revere into the machine again. We'll go back a few more hours, and begin again, and this time we'll make sure!"

I didn't wait another second. Together we dashed back into the tavern. . . .

THERE was no one there. Paul Revere and the barkeep had both vanished. Only a little back-door, swinging idly in the morning breeze, indicated how the two men had disappeared . . . fleeing from demons from another age. . . .

"Now what, Walter?"

"I'll tell you what! We're going out to find him and put him on the Swing." He started to go out that little back-door, going to Heaven alone knows where, when I seized his arm.

"Listen!" It was the second time that night.

There were horses in the distance, and shooting. The short bursts of rifle fire blasted the quiet morning air. "They're coming for us!" I gasped. "Revere and the barkeep have gotten help. We've got to get out of here."

"We can't!" Walter said, with a strange firmness. "We've got to make them understand. We're sacrificing the heritage—"

"Heritage! We'll sacrifice ourselves! You know by now we're through. All I want now is to die in my own time."

Walter was about to say no when I let him have it. He had fallen halfway to the ground when I caught him and lugged him to the rickety Time Swing. I strapped the both of us in.

The horses were sounding louder now, the shots closer.

A million strange switches stared me in the face. I monkeyed with them the way I had seen Walter do, turned a lever which said, "Reverse," and held on for life. Horses were galloping past the tavern.

Just then the door opened and a grimy man in a three-cornered hat strode in. He carried a gun in one hand, which he suddenly threw up and aimed at us. And then the whole world seemed to blur, like faces in an unsteady stream, and the machine quivered. My stomach twisted, and I heard the sound of a musket going off somewhere, and something soft brushed by me. . . .

Walter's workroom was swimming by at an angle, spinning on a mad pivot. There was a sudden rain of machinery, a swift jerk, and the leather straps that held me gave and spilled me out on the floor, with Walter following.

The most magnificent traitors in history had returned, after doing a job that no one on Earth could undo, selling out a nation that had paid in blood for a victory that had been wiped out.

Walter was sitting up, a foolish smile on his face. "Hell," he said, "I *feel* like an American."

I got up and peered through the drawn curtains of the room. The dawn was coming up. Soon the sun would be shining over this land, the same sun that never set on British soil. And yet it all looked the same to me. History might have changed, but maybe Boston had been left out of it. It was impossible to believe that our world had been so changed.

The room was the same, the furniture the same. The street outside, even the street-name, *Adams Street* was the same; I could read it from where I stood. "Walter," I said, suddenly, "do you suppose the British would have let us keep the same names on our streets —names of Revolutionary heroes?"

"Maybe," he said, glumly. The idiot's smile had left him, and he was returning to full consciousness. "Just history, that's all. We've changed every book ever written about it—like that." He tried to snap his fingers, but it didn't work.

"Exactly." I almost whispered it. "That's where we can find out exactly what we've done." I lurched at the bookcase, and dragged out one of the musty volumes of the—I cursed the thought — *Encyclopaedia Brittanica.* Swiftly I ran through the pages on the American Revolution. . . .

IT was all the same . . . all the same . . .

"Walter! Look at this!"

But Walter had thought of something else. He had been reading another book. "It's all right!" he shouted, *"Hank, it's all right."* He threw the book down on the floor, yelling, "Yankee Doodle," jumped after it, opened it again, and lying there, he read to me.

" . . . On the night of April 18th, when the British were planning to seize the Concord military supplies and arrest John Hancock and Samuel Adams, and thus quash the Revolution before it started, a prominent patriot named Paul Revere was to catch a signal flashed

(*Concluded on page* 138)

Vagabonds

Stuart felt the heat of Kale's pistol shot blast past his head

"TUCKIES! 'Way out here on Pluto, too!"

The voice like a hinge grating came from a few feet away. Hill Stuart raised his head from the ignition box of the old spaceboat. Even before he turned, the young engineer sensed that the speaker was a lady tourist.

Hill Stuart had been wandering with the Tuckies for the year since he got out of Engineering School. He had seen many objectionable specimens of all kinds. But lady tourists! He shook his head in resignation.

There were two now. The mannish-clad females were standing, arms

of the Void

By PETER HORN

The Tuckies might have known that there was something fishy about being given a paradise like this—but dreams seem real sometimes . . .

akimbo like Buddhas, glaring at the Tuckie camp. The space migrants had just gathered the *lecci* crop, Pluto's medical weed. And now they were getting ready to move to another planet.

The stout tourist lady, who Stuart thought looked remarkably like a space-buoy, sniffed disapprovingly.

"How do we know, Edith," she demanded of her middle-aged companion, "that these—these *gypsies* should be allowed to bring up children? Perhaps they have never even been examined for eugenic purposes.[1] Yet here they are running around loose in the solar system. The laxity of the Planetary Hygiene Board with these people is positively criminal!"

Her companion nodded vigorously. Together, the two lady tourists glared, as if they hoped to distintegrate the Tuckie[2] camp by will power alone.

The faded tents that lay on Pluto's black soil were coming down swiftly, one after another. The tall, raw-boned Tuckies folded them expertly but gently, for the crazy-quilt patchwork on the worn canvases might give at any moment.

Sturdy Tuckie women collected their kitchen utensils and stowed them in their old-fashioned chemical stoves. Others rounded up the half-clad Tuckie children, who were running about and yelping in the excitement of going away.

Hill Stuart turned to look again at the self-appointed critics. The Tuckie camp was certainly no Venusian summer resort—but neither was it something for smug Earth schoolmarms to sneer at. The space migrants were as hard-working and respectable as anyone else. Down on their luck, that was all.

At that moment the eyes of the stout tourist lady came to rest on Stuart. Her haughty gaze took in his six-foot length, his tawny shock of hair and lean face. Hill Stuart returned her stare good-naturedly; and just for a good measure he made a face like a Mercury monkey-man.

The female space-buoy exploded in a gasp, and seized her companion's arm. Together they moved off quickly, muttering something about "notifying the authorities."

Hill Stuart sighed. Tourist ladies always were notifying some authority or other. There was nowhere in the universe to escape them.

A low chuckle sounded. Stuart turned to find Art Bismer, the grizzled leader of the Tuckies, at his side. Bismer had obviously taken in the little sideplay and enjoyed it. His strong wide mouth chewed on the long Earth straw with relish.

"You oughta come with us, Hill," Bismer drawled. "We're fixin' to burn touring women for witches on Luxor."

STUART grinned. It was good to see Bismer so jovial. After years of wandering, the Tuckies were going to settle down. They had been promised land on the little planetoid of Luxor, two days out of Pluto. *Land!* It meant

[1] The science of eugenics—the method of improving the human race through more selective marriages among men and women—will most probably be a matter of law in the years to come. The object is to prevent the wrong people from raising children who will be a liability on the community. Through more careful selection of marriage mates, it is hoped in the future to breed out idiots, imbeciles and below normal persons, in addition to people of bad physical stock.—Ed.

[2] A popular best-selling novel has been John Steinbeck's *The Grapes of Wrath,* which tells of the plight of midwestern "dust bowl" farmers migrating to California in search of jobs. Steinbeck calls his people "Okies," since many come from Oklahoma, severely ravaged in recent years by dust storms. Although many people objected to the type of language in this book, the conditions portrayed are regarded by many authorities as substantially true. A motion picture version of *The Grapes of Wrath* will be released this year.—Ed.

more to the former Kentuckians than gold.

"Not me, Art," Stuart's blue eyes twinkled as he replied. "You know what they say—a meteor gathers no cosmic dust. I figure on seeing a lot more of the universe before I take root."

Bismer smiled wryly. "We're gonna miss you, Hill," he said simply.

Stuart was silent. The migrants were real people. They had been real friends to him, had taken him in when he was alone in the world. But hell, a fellow of twenty-three couldn't take roots! Not yet. To cover his emotions, the young engineer bent over the ignition box of Bismer's space flivver.

In a moment he stood up again. "Art," he said, "your jallopy's okay. She could take you to hell and back again. They made *ships* years ago! Not like the modern hunks of aluminum you gotta trade in every year."

Bismer grinned and patted the unpainted, cracked fuselage of the fliver.

"She flies," he said dryly. "Once she's in the air—she flies. But what gets me is, I never know if she's gonna *get* in the air—or just naturally explode."

The two men laughed and looked at the Tuckie camp. All was ready for the journey. The Tuckies were standing near their space jallopies, waiting for Bismer to give the signal. The children had been rounded up in the ships, and the brown faces of the Tuckie women showed through the cracked portholes.

Bismer turned to Stuart and stuck out his gnarled hand. The two shook wordlessly. Bismer opened the door of his ship and jumped in. Then he turned briefly, and called back:

"Good-by, Hill. The address is Luxor—we'll always be glad to see you."

With that, the old migrant disappeared into his flivver. A chorus of "good-bys" rang out from the camp as the Tuckies bid farewell to Stuart. The women waved from the portholes and Hill Stuart waved back. The friendliness of the band made the young engineer feel all warm inside.

Suddenly he noticed a Ground Patrol car coming toward the camp. Trouble. . . . the Tuckies might be held in Pluto. Stuart caught Bismer's eye through the porthole, and motioned for him to take off at once. The old migrant nodded understandingly.

The Patrol car was closer now, but moving slowly. Stuart could see indistinctly the three occupants. With a start he recognized two of them—the tourist ladies!

There was a low rumbling sound. Stuart moved out of the way as Bismer's space jallopy began to rock from side to side jerkily. It seemed as if it might fall apart any instant. Then suddenly the old flivver seemed to explode, and a torrent of black smoke gushed from its vents. There was a great crackling sound, and when the air cleared Bismer's ship was streaking skyward. The rest of the space jallopies groaned, shivered and exploded in turn, as they followed their leader upward.

Stuart saw that the three people from the Patrol car were hurrying toward him. The third member of the trio was Pat O'Connell, a huge sergeant whom he had seen once or twice in Pluto City. He had a very weary expression on his big red face. The stout lady tourist was calling him down in most unladylike tones.

AS the three came up to him, Stuart could make out what she was saying.

"—and you didn't hurry at all! You took your time and let them get away. If a plague breaks out in the solar system now, you'll be to blame!"

The big Patrol Sergeant eyed the fe-

male space-buoy in wonder. He had seen many tourist ladies—but this one beat them all.

"Now, madam," he began soothingly, "you shouldn't become so—"

"Don't 'madam' me," she retorted. "You're going to be held strictly responsible for this. I'm going to see that your superiors hear about it!"

The sergeant took a deep breath and shook his head.

"Lady," he said slowly, "if you don't shut up, I'll have to arrest you for creating a disturbance. I wouldn't like to do that, but I'll sure have to!"

The face of the stout tourist lady took on an incredulous look.

"Now run along," the big sergeant continued, not unkindly, "before you and your girl friend land in the jug for the night."

For a moment, Hill Stuart thought the space-buoy was going to pass out. But she simply blinked, swallowed weakly once or twice, and then allowed her companion to lead her away. It was a complete route. Stuart grinned and looked at the sergeant.

"Sure, she's a terror," the officer muttered, wiping his brow. "But I got a wife who can give her aces and spades, so she didn't scare me much." He winked at Stuart and wiped his brow again.

Stuart said: "I'm glad you didn't try to stop the Tuckies, Sergeant. There would have been a rumpus—they've been promised land of their own this time. And they wouldn't have liked to be kept away."

The sergeant looked hurt. "Me stop them?" He shook his head. "I know Bismer and the rest pretty well—they're fine people. Of course, there's a law here on Pluto about living without proper sanitary facilities—but it ain't much of a law."

Stuart smiled. The sergeant put his cap back on and scanned the sky. Faint streamers of black smoke far off on the azure horizon indicated Bismer's direction.

"Whereabouts are they heading for?"

"Luxor. A planetoid. About three days away, I think."

A frown suddenly creased the sergeant's big brow.

"Luxor," he repeated, and passed his hand over his chin troubledly.

"What's the matter?" Stuart asked wonderingly. "Is there anything wrong there?"

The sergeant kept rubbing his chin. "You say the Tuckies are getting land on Luxor?"

Stuart nodded. The officer shook his head worriedly.

"There ain't any land on Luxor," he said. Stuart stared at him uncomprehendingly. The sergeant went on:

"I mean, there ain't any land they can work. You see there's been a lot of illegal *lethe-weed** flooding the market around here. Some of our men went out to Luxor on a routine search. The ground out there is ideal for growing *lethe*—it's all rocky and mountainous. They didn't find anything suspicious—but they brought back a complete report on the terrain. I happened to see it. There ain't any tillable land on Luxor."

"Then why were they invited to come out there?" Stuart asked.

"Your guess is as good as mine," the sergeant told him.

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* This *lethe-weed* on Luxor is no doubt the same thing as its counterpart on Earth—marihuana, or loco weed, which grows wild in the southwestern section of the country and in Mexico. Illegal cigarettes are made from this weed, and smoked by people who want to go on a jag. Annually many peddlers are arrested and given stiff prison sentences for selling this illicit cigarette to high school students, and a movement is now under way to make the manufacture and selling of marihuana a Federal offense under the narcotics act. On Luxor, *lethe weed* is apparently cultivated. At any rate, *lethe-weed* or loco weed, marihuana is a vicious drug which should be avoided at all costs.—Ed.

SILENTLY, the two men walked back to the Patrol car. The sergeant indicated for Stuart to climb in, and they started back to Pluto City.

As they rode, Stuart said, "I don't like it. If I had a ship I'd go after the Tuckies. The whole thing sounded too good, anyway."

They drove along awhile and the officer said slowly:

"There's a flivver lying on my lot, young feller. If you can fix it up to fly. why, you can have the loan of it."

"Thanks," Stuart said warmly, "I'll get to work on it right away."

"If anybody does any harm to Art Bismer and the rest," the sergeant scowled grimly, "we'll blow that planetoid right out of the sky!"

CHAPTER II

Leader of Luxor

HILL STUART cut his rockets when he heard that peculiar dull roaring that meant his ship was entering atmosphere. He was arriving on Luxor about two days after the Tuckies, he figured. The sergeant's ship had really needed some fixing. But once it got in the air, it went along fine.

He loosed the forward jets as he made out the terrain far below. All jagged rocks, gorges and twisting crevices, as the sergeant had said. But there must be a landing field, Stuart thought. He brought the ship to an even keel and cruised along.

After about ten miles of unbroken rocky terrain, he suddenly saw the spaceport. It was small but it looked adequate. Stuart brought the ship down carefully, and stepped out on the graveled soil.

So far he hadn't seen a single being, Plutonian or human, on the planetoid. There were several brick buildings on the edge of the field. He picked out the biggest one and walked toward it. Everything looked innocent enough, but on the way he made sure his reaction pistols were primed.

It was late afternoon. The dim rays of sunlight, spent after their long journey, cast a dull, faded glow over the planetoid. To the right of the buildings, Stuart spied a big new space ship. It was a beauty—whoever owned it had plenty of money.

There was no sign of the Tuckies' jallopies—or of the Tuckies themselves, for that matter. Stuart frowned a little and tried to shake off the feeling of impending evil that had suddenly settled on him.

As he approached the house, he sensed that he was being watched. He glanced upward quickly. A dead-white face was framed in one of the windows —a Plutonian. Even as he looked, it disappeared.

Well, Stuart shrugged, if this was going to be a case of hide and seek. . . . He was about to try the metal door of the building when it swung open. A man, an Earthman, small and thin, stood on the threshold.

"Come in," he said gruffly. "We've been expecting you for an hour."

Rocket indicators had detected his approach, of course. Hill Stuart walked past the little man warily. The Earthman led him into a large room with two windows fronting on the landing field. There was a desk in the corner near the windows. The little man sat down behind it and motioned for Stuart to sit also.

"My name is Stromb," he announced in a thin weary voice. "What can I do for you?" He did not offer to shake hands.

Stromb—that was the name of the man who had offered Art Bismer land on Luxor. Stuart hadn't seen the agent,

but from Bismer's description of "a measly runt", he recognized the Earthman only too well.

"A party of migrants, friends of mine, landed here two days ago," Stuart began. "I'd like to join them." His tone was artless. The young engineer had no intention of letting Stromb know of his suspicions.

The little Earthman's eyes were red and watery. As he looked at Stuart, he blinked continually.

"No migrants have come here for months."

Stuart remained quiet for a moment. Then he said, "Well, anyway, I need work. I'm down and out, Stromb. How about it?"

A FAINT sneering smile flickered across Stromb's weak mouth. His watery gaze went past the window and out onto the landing field. It came to rest on Stuart's ship.

Of course! The young engineer felt like kicking himself. Stromb thought he was an Interplanetary man. The sergeant's ship had formerly been an official one. It still retained some of the original paint.

"Listen, Stromb," S t u a r t spoke casually, "that isn't my ship—and I'm not a Service man. If I were, do you think I'd be dumb enough to use an official space boat?"

Stromb smiled in his sickly fashion. "Whoever you are, there's no work here. This is private property. And if you don't get off right away—and stay off, you'll run into trouble."

There wasn't even an attempt to be diplomatic about it. Stuart was convinced now that there was something wrong on Luxor. And he had no intention of leaving without finding what it was.

Stromb was staring at him, watching him. Stuart took a long breath, calculated his chances and decided he'd better work fast. He ungrooved his pistol and pointed it at Stromb in one smooth motion.

"Don't make a sound or try to give a n y signals, Stromb. Get up v e r y quietly and lead me to where the Tuckies are."

The little Earthman made no move. He rubbed his red eyes and grinned wearily. Stuart's jaw hardened and he leveled the pistol at Stromb's head. But at the same moment, the young engineer felt two hard objects poke into his spine. He had gambled too soon!

Stuart smiled dryly as Stromb took away his pistol. Turning, he saw that he was being covered by two Plutonians. Their deadly white faces were complete blanks—robot-like. Stuart had seen many human albinos, but Plutonians always handed him a shiver. Every part of their bodies, from the hair on their heads to their fingernails, was in varying shades of pallid, toneless white.

With a grimace, Stuart turned to Stromb. "You're directing the program now," he said. "What's next?"

The little Earthman ignored him. He was about to say something to the Plutonians when the door across the room opened and a tall figure strode through.

Stuart saw that the newcomer was a Plutonian. The dead white of his face and hands revealed that. But, by some odd freak of chance, *his eyeballs* and the locks of hair that covered his head were a gleaming black! The effect was startling.

Stromb blinked nervously, as the newcomer stood poised in the doorway surveying the room. The little Earthman said jerkily,

"This fellow's looking for work. I told him we didn't have any on Luxor. That's right, isn't it, Kale?"

Kale did not even look at the little

Earthman. The Plutonian's step was soft and slinking as a serpent's as he came up to Stuart.

"Please," he said, his black eyeballs fixed on the young engineer, "I do not know who you are. Your stupid countryman has forgotten to introduce us."

Out of the corner of his eye, Stuart saw Stromb wince.

"My name's Stuart—Hill Stuart," he said briefly.

The Plutonian inclined his head in acknowledgment.

"And my name, as you heard, is Kale. We Plutonians have but a surname. There are still so few of us that patronymics would be absurd."

THE Plutonian ended his sentence with a simple upward gesture of his ivory fingers. His delicately curved lips were fashioned in a smile.

Stuart stared at the Plutonian curiously. Despite himself, the young engineer felt his interest aroused. Kale was certainly no ordinary inhabitant of Pluto. The natives of the dim planet were notoriously close to savagery, whereas Kale's manner was reminiscent of ancient royalty.

His voice was low and cultured; his diction flawless, and his dress immaculate. Intelligence and willpower radiated from his erect frame in almost tangible waves. Yet an unmistakable aura of evil surrounded the man. Stuart could not explain his feeling, but he would have staked his life that the Plutonian was a consummate scoundrel.

"Am I to understand that you wish employment on Luxor, Hill Stuart?"

There was a fleeting mockery in the Plutonian's voice. A subtle, almost undetectable challenge. Hill Stuart felt an involuntary shudder run the length of his frame. But he stared straight at the Plutonian, and even managed a smile of his own.

"Yeah, and if it's not too much trouble, I'd like to join some friends of mine who landed here two days ago."

Stromb coughed, his fingers rubbing his loose lips.

"I don't think, Kale, that—"

Kale's knifelife glance cut him short. "Even assuming that your brain were equal to the task, Stromb—I do not employ you to think."

The little man squirmed in his seat. A quick hatred flared in his reddish eyes. But his gaze fell without struggle before the imperious, contemptuous stare of the Plutonian, and he sat silent.

Kale turned back to Stuart, smiling faintly as if in apology for his underling. His voice was cordial, even pleasant again as he said:

"There are several conditions which you must be willing to fulfill, Hill Stuart, before you can work on Luxor. The first is to give your word that you will not leave in less than three months. Are you willing to do that?"

"I would prefer to find out what the life here is like before I make such a promise."

Kale smiled. "I assure you that life on Luxor is quite idyllic. Ah—it will equal your fondest dreams."

"In that case, I give my word."

"Good. And now, since you are doubtless fatigued after your arduous journey, Hill Stuart, I will see that you are taken at once to your quarters. I trust that you will find them comfortable."

If there weren't something intangibly diabolic about the Plutonian's stilted manner, it would all be quite funny, Hill Stuart thought. But he felt no desire to laugh, as he looked into the mocking black eyeballs of the other.

"If you will permit me—" Kale was holding a small dark band made out of silk that he had taken from his pocket. Stuart stared at him questioningly.

"The other condition," Kale explained, and apologized with a deprecatory gesture. "This blindfold is a minor precaution. You see, the location of this promised land is a secret—even on Luxor."

THE plot was thickening. It was not too late to back out and return to Pluto for the Interplanetary squad, but Hill Stuart saw the challenge in the other's eyes and decided to take it up.

"Blindfold away," he shrugged. If Kale wanted to get rid of him, the Plutonian wouldn't have to resort to such devices. No, it was obvious that Kale had something more devious on his mind—

Kale blindfolded him and then led him to the door. One of the Plutonian guards took his arm.

"Good night," Kale said, "and pleasant dreams, Hill Stuart."

Again Stuart caught that note of mockery and of challenge in the Plutonian's voice. He did not answer. The guard who held his arm guided him out of the house. He could hear the other Plutonian walking a few feet behind.

They walked for what Stuart judged to be about half an hour. During that time, the texture of the soil underfoot never changed. It was always hard-packed gravel and not hilly. And Stuart noticed that several times the light wind came about to blow directly against him.

Was he walking in wide circles? Was Kale giving him every opportunity to pierce the secret of Luxor? The questions were strong in Stuart's mind as the Plutonian guard suddenly brought him to a stop. He was led up a few steps, heard a door open and felt himself guided into a room. The Plutonian took his blindfold off, joined the other guard at the door, and the two left woodenly, locking the door behind them.

Stuart looked around him. His apartment had apparently only one room. But it was comfortably furnished, with a wide bed, a chest of drawers, several chairs, lamps and a table. There were no windows, and ventilation seemed to come from slits in the apexed ceiling.

He sat down on the bed and tried to gather his thoughts. Kale was a scoundrel, and the best thing for the Tuckies was to get off Luxor. But first he had to find them. . . .

Hill Stuart found himself getting very sleepy. His eyes began to close and he stretched out on the bed to rest. But a deep languor descended on him and he sank into a heavy sleep.

CHAPTER III

Troubled Vision

AS Hill Stuart stood on the steps of his cottage and looked about him, he could hardly believe his eyes. The young engineer had awakened a few moments before and found the door unlocked. The scene that now met his gaze made him blink hard and rub the sleepiness from his eyes.

It was morning. The slanting rays of an early sun illuminated a wide level expanse stretching horizonward like a great fan. On Stuart's left were endless acres of rich moist fields that bore a heavy burden of tall yellow Earth corn, billowing golden wheat and thick bushes of black and green grapes. Next to these were neat rows of tilled brown soil, covered with a bursting harvest of potatoes, cabbages and other Earth crops.

Stuart could see Tuckies in the fields: planting, reaping, tilling. Their bodies swayed softly as they worked the rich earth. The young engineer's mouth hung open. With a gulp, he closed it.

The *promised land*—with a vengeance!

Stuart turned. To his right were many trim white cottages, such as the one he had just come out of. The cheerful dwellings bordered on a green park, a large oval covered by lush grass. He could see Tuckie children romping and playing there.

Stuart's brow wrinkled, as the first shock of the wondrous sight began to wear off. He had passed over a good deal of the planetoid before landing yesterday, and nothing remotely resembling this village of plenty had met his eye.

Had Kale transported him while he slept to another planet? It was hardly conceivable. Pluto, the nearest habitable space body, was two days off by the fastest ship.

Stuart half smiled. He was beginning to appreciate that meaningful look in the black eyeballs of the Plutonian. He had seen similar expressions on the faces of polished magicians just before they pulled their white bunnies out of a top hat. But in this case, Stuart felt, the magician wasn't entertaining. Not by a long shot.

Was he expected to go right to work in the fields? Not on the first morning, he told himself. The correct thing was to pay a neighborly call, and then find Bismer and have a talk with him.

The nearest cottage was twenty feet away. He walked up to it and saw that the door was open. Inside, a Tuckie woman was busy before a shiny atomic stove.

"Good morning," he called cheerfully.

The Tuckie woman looked up and walked to the door. As the sunlight fell upon her, Stuart saw that she was hardly a woman at all. Just a girl. A slip of a girl with hair the color of burnished autumn leaves. She looked at him questioningly, without a smile.

"Er—it is morning, isn't it?" Stuart grinned.

The girl nodded. An intangible sadness hovered over her pale oval face. Her clear brown eyes were troubled as she regarded the young engineer.

"I just arrived," Stuart explained, shifting from one foot to another like a school boy. "I'm looking for a friend of mine named Art Bismer."

"Art Bismer—" she repeated in a full throaty voice. "Yes, he's here. He'll be in from the fields soon."

The haunting sorrow that marked the girl's lovely face disturbed Stuart. He indicated the village around them and watched her as he said:

"The Garden of Eden must have really been here on Luxor. You people should be very happy here."

A strange expression came over the girl's face, and Stuart felt that she was going to say something he wanted to hear. But at that moment something over his shoulder caught her glance. A glow of affection suddenly lit up her features, and she waved her hand.

STUART turned and saw that several Tuckies were returning from the fields. In their midst was a youth — hardly nineteen, Stuart judged — and very pale and thin. The arm he was waving at the girl was no thicker than a willow twig.

"That's my brother, Paul Holden," the girl said. "I'm Ellie Holden."

Stuart murmured a greeting and bespoke his name. He was about to ask the girl pointblank to explain the sorrow in her eyes, when he saw an expression of alarm appear on her face. She uttered a small cry and darted past him. He wheeled and saw that her brother lay outstretched on the ground.

Before he could reach the boy, other Tuckies had picked Paul Holden up from the earth and were carrying him

toward the cottage. The girl supported his frail head gently, her eyes never leaving the boy's pale face.

The Tuckies came out of the cottage in a few moments. Stuart saw with surprise that they were all thin and weak-looking. And there was a sort of haziness about their eyes that puzzled him. They nodded to him in a polite manner, and walked away without speaking.

Stuart frowned grimly and set out to find Art Bismer. He did not have to search long. The Tuckies were coming in from the fields now, and several from Bismer's band recognized him and greeted him warmly. It seemed to Stuart that they looked much healthier and huskier than the rest. And their eyes reflected none of the dullness he had seen on the other Tuckies.

Suddenly he saw Bismer coming toward him, brown coveralls soiled with lush earth. The grizzled old man beamed with pleasure when he sighted Stuart.

"So," Bismer chuckled as he pumped Stuart's hand, "you've decided to settle down already, son."

Stuart made no reply. Bismer led him to his cottage. The old migrant insisted that Stuart stay with him.

After they had eaten, Bismer stuck a long straw in his mouth and began to chew on it.

"I got a feelin' you got somethin' special on yore mind, Hill," he said at last. "Let's hear it."

Stuart drummed on the tabletop with his fingers. "Was everyone blindfolded and brought here, Art?"

Bismer nodded. "They sure aim to keep this place a secret," he said dryly.

"And Kale made you promise to stay at least three months?"

Bismer squinted. *"Kale?"* He shook his head. "We promised, but we didn't see nobody but a feller named Stromb."

Stuart hesitated. "Art," he said, "I didn't come to Luxor to settle down. I came here to take you and the rest of the Tuckies away."

The straw between Bismer's teeth stopped moving. "Take us away?" he echoed. "What for, Hill?"

Stuart repeated what the Patrol sergeant in Pluto had told him about Luxor's terrain.

"But they must have made a mistake," Bismer objected.

"It's possible," Stuart admitted. "But there's no mistake about Kale — the man you're working for."

He described Kale to the migrant, emphasizing the indescribable aura of evil that surrounded the Plutonian, and Stromb's obvious fear of him.

BISMER stared at Stuart thoughtfully. "I know you ain't one to get excited about beans, Hill," he said, "but I still don't see what we got to worry about. This Kale sure sounds like a scoundrel, but his farmland can't be beat. If anything goes wrong, why, we can always leave."

"Things are going wrong now, Art," Stuart said earnestly. "Those other Tuckies — why are they so thin, and why do they act so quiet-like? I'm sure it's because they've been here longer. They have, haven't they?"

Bismer nodded. "But I figured that was on account of overworkin'."

Stuart shook his head. "Art, I'm convinced there's something queer about Luxor. Something we don't know anything about."

Bismer was silent for a moment as he regarded the young engineer.

"You know, it just struck me," he drawled, "that we ain't had a camp-meetin' here on Luxor yet. Mebbe we'll have one right this afternoon. And"—he peered at Stuart—"mebbe you'll be wantin' to say somethin' to the men, Hill."

The sun waned over the yellow cornfields, as the Tuckies gathered in front of Bismer's cottage. The men squatted in the foreground, and the women and children sat in the rear as they always did. There was little talking. Even the children were quiet. A "camp-meetin' " was never called unless something pretty important was up.

Stuart sat on the steps of Bismer's cottage. The grizzled leader stood beside him facing the assembled Tuckies.

"Most of us know Hill Stuart," Bismer began. "We know he don't usually talk to hear himself blow off steam. I'm not gonna say any more, because I called this camp-meetin' so you all could hear Hill speak his mind."

The long brown faces of the Tuckies turned curiously to Stuart as the young engineer rose. He hesitated briefly as he looked past the squatting Tuckies and out toward the fields of blond wheat that bent gently in the breeze.

"I know what land means to all of you. I know that this place is what you've been looking for all your lives. It means steady work and a chance to build your own homes and raise your children in comfort. It means you can stop wandering around the universe, knocking about from planet to planet, going many days without a decent meal."

A murmur of approval ran through the assemblage. Stuart's face was grim as he continued.

"But it also may mean a lot you aren't bargaining for. Sergeant O'Connell of Pluto, whom some of you know, told me before I left that expert topographers had reported that *there wasn't an acre of workable land on Luxor.*"

The Tuckies stared incredulously at the young engineer. One of them shouted out:

"Did you say *expert* topographers?" Loud guffaws resounded.

"Maybe they did make a mistake," Stuart replied. "But there are other things. None of you has seen Kale, the man who owns Luxor. He's a Plutonian, the sneakiest one I ever saw. He's been suspected of running *lethe-weed* to Earth and other planets. Kale isn't giving you this land for nothing. I don't know what the price is yet—but I'm sure it's higher than you want to pay."

A GRUMBLE ran through the crowd. A tall gnarled Tuckie stood up. Mat Higgins, one of Bismer's band.

"What are ye tryin' to do? Frighten us with a Plutonian bogeyman!" Higgins demanded. "We ain't children, Stuart. If there's anything underhanded going on around here, I say wait and find out what it is before we start bawlin'!"

The others voiced their agreement.

"How about those Tuckies who have been here longer, two or three months? How do *they* feel about it?" Stuart asked.

There was a silence. Several of the thin, hazy-eyed Tuckies shifted uneasily but did not speak. Stuart nodded.

"They're not so enthusiastic. I didn't think they would be. Whatever the poison is in this place, it works slowly—but surely. Maybe when you do want to get away you haven't the strength to do it. I think we all ought to pack up and get off Luxor before that happens!"

An angry murmur ran through the crowd. Mat Higgins jumped up again.

"I don't care if I'm working for Satan himself!" he shouted. "I ain't gonna get off this land just because somebody's got a lot of hare-brained ideas!"

The Tuckies nodded their approval.

"Maybe Hill Stuart would like to see us leave," Mat Higgins added craftily. "Maybe someone's payin' him to get us off!"

An angry murmur arose and the

Tuckies glared at Stuart suspiciously.

Stuart's jaw tightened and his fists clenched, but he held himself in check.

Bismer rose. "You got no call to say a thing like that, Mat Higgins," he said. Higgins mumbled something under his breath and sat down.

"Well, folks," Bismer drawled, "let's not be in a rush about decidin' this. I reckon one or two days more can't really harm us. Meanwhile we'll keep our eyes wide open. I guess that'll be about all, folks."

The Tuckies rose and departed, their long faces drawn troubledly. The little village was quiet. Alone Stuart walked away from Bismer's cottage toward the cornfields.

Near the edge of the fields he stopped. It was queer that he couldn't see Kale's house from the village. He had hardly walked a mile while he was blindfolded. Yet the brick buildings and the landing field were nowhere in sight. He ran his hand through his hair wonderingly, and watched the sun, a small ball of orange, go down among the cornstalks.

A soft footfall behind him interrupted his reverie. He turned to find Ellie Holden standing before him. Her clear brown eyes regarded him evenly.

"I want you to know, Hill Stuart," she said simply, "that I think everything you said about this place was right."

She shivered a little, and Stuart saw the sorrow leap into her eyes again.

"Something is bothering you very much," he said gently.

She nodded slowly. "I haven't told anyone except my brother Paul. And he didn't understand — he laughed at me."

STUART regarded her without speaking, and finally she went on.

"It may sound very foolish," she explained in a low voice, "but I have found that I am the only one in camp *who dreams.*"

"You mean that no one else in camp has dreams?" Stuart asked puzzledly.

She shook her head.

"What do you dream about?"

"The vision is always the same—or nearly the same. Each night a man comes to me and tries to take me away with him. I struggle and plead with him, and after a while he goes away."

A shudder ran through her and her eyes narrowed as if in pain. But she fought off the tremor and continued.

"Each night it seems that the dream lasts longer, and he grows more persistent. I cannot describe the loathing I feel when he is near me. His voice is so soft, so horribly pleasant. Sometimes I feel he will make me go with him against my will."

She closed her eyes for a moment, then looked up at Stuart and tried to smile.

"It is silly to let a dream upset me so, isn't it?"

But Stuart did not answer. There was a strange expression on his face as he said:

"This man in your dream—what does he look like?"

"He looks like a Plutonian," Ellie said. "Except that his hair is jet black —and his eyeballs are like gleaming coals."

CHAPTER IV

Stuart's Discovery

HOW Ellie could dream of Kale—for Hill Stuart was convinced that her nightly visitor was the Plutonian — without ever having seen him, remained an unsolved mystery. But it was not the only inexplicable occurrence in the "idyllic" little village. Far from it.

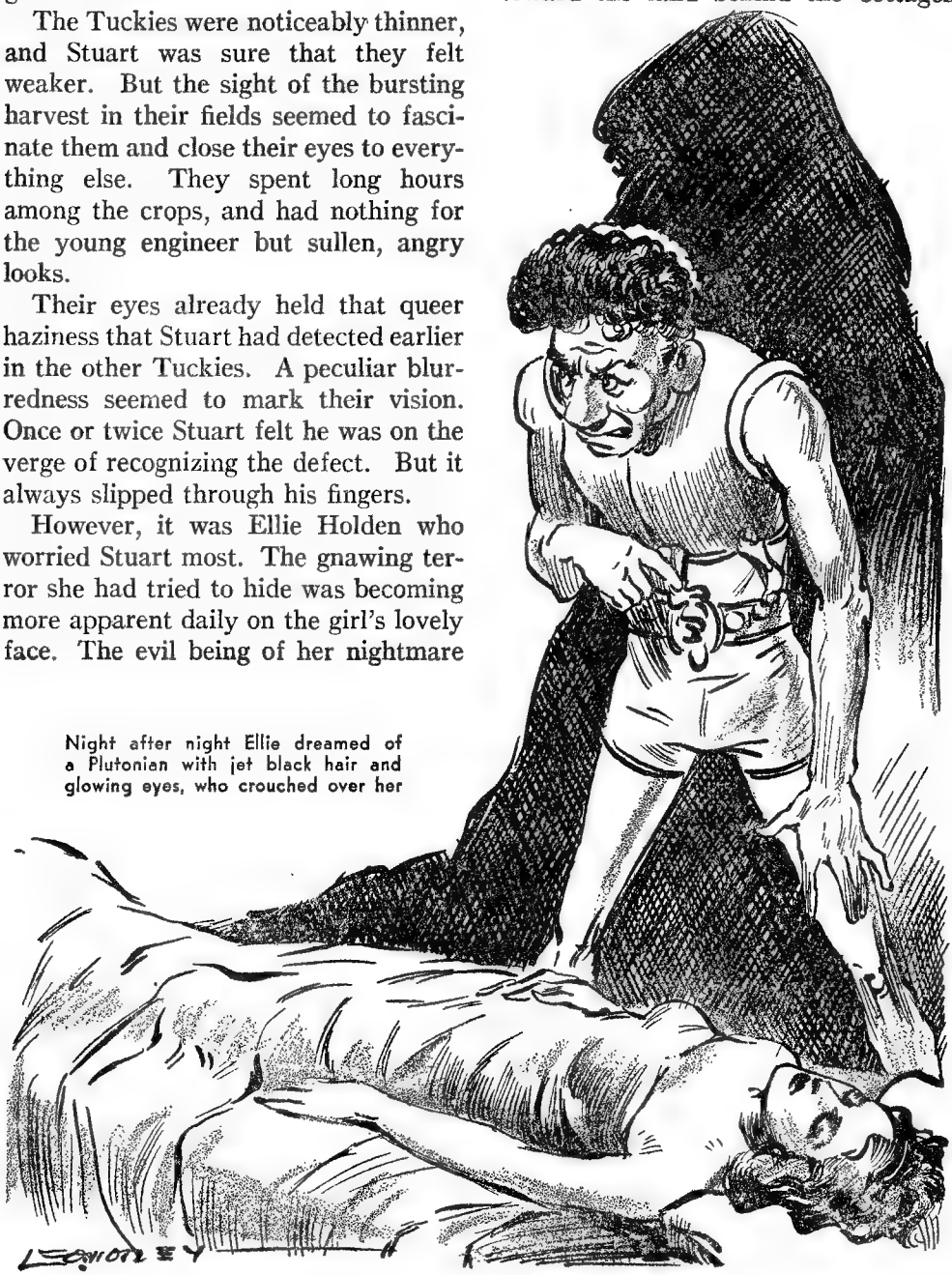
Three days had passed since Ellie Holden revealed her secret to Stuart. And each morning, the young engineer had felt a little more of his strength slipping away. It was as if a night's sleep drained his energies instead of replenishing them. He awoke tried, languorous.

The Tuckies were noticeably thinner, and Stuart was sure that they felt weaker. But the sight of the bursting harvest in their fields seemed to fascinate them and close their eyes to everything else. They spent long hours among the crops, and had nothing for the young engineer but sullen, angry looks.

Their eyes already held that queer haziness that Stuart had detected earlier in the other Tuckies. A peculiar blurredness seemed to mark their vision. Once or twice Stuart felt he was on the verge of recognizing the defect. But it always slipped through his fingers.

However, it was Ellie Holden who worried Stuart most. The gnawing terror she had tried to hide was becoming more apparent daily on the girl's lovely face. The evil being of her nightmare was growing more persistent, more diabolically compelling. No night passed in which the cold, repulsive presence did not appear to her.

One morning, Stuart waited until the Tuckies had gone to the fields. Then, without telling anyone, he struck out toward the land behind the cottages,



Night after night Ellie dreamed of a Plutonian with jet black hair and glowing eyes, who crouched over her

where ground swells brought the horizon much closer than in any other direction. Kale's house could not be very far away.

He had covered hardly a hundred yards when he heard Ellie's voice behind him, calling his name. He turned and waited for the girl to come up to him.

"I want to go with you," she said. Her pale beautiful face was set bravely.

Stuart smiled grimly at her. "I don't know if I'm going anywhere," he said. "But come on."

As the white cottages receded behind them, the terrain took on a strangely unreal aspect. A whispy grayness seemed to dissolve all the colors of the earth, the sun and the sky into a drab landscape. There was no wind, yet something seemed to impede their progress. Ellie's steps grew slower and she had to struggle to keep up.

Stuart gripped her by the arm, and the two of them fought doggedly against the mysterious force that was holding them back. The cottages behind them had disappeared. The blue horizon and the bright sun had vanished. All about them was a filmy clinging gray mist that swirled and twisted as if it were alive.

Stuart felt as if he were moving through some heavy fluid, like mercury. Each forward movement cost him a high toll of vital energy. He was moving so slowly that five yards seemed to consume hours.

Suddenly Ellie went limp. Stuart placed her gently on the ground.

"You go on," she whispered. "I'll be all right."

Stuart shook his head. "I can use a rest myself," he said, and sat down beside her.

THE atmosphere seemed to be animated with a diabolic ferocity. It beat upon Stuart like massive ocean waves, oppressing his body, dulling his mind. He feared that to sit any longer would be fatal.

"Come," he said. Ellie struggled to her feet. Through his stifled brain, Stuart felt a thrill of admiration for the simple courage of this slip of a girl.

"A little ways longer," he jerked out, and they started forward.

What happened next Stuart perceived as if he were under an anesthetic. All the sounds were shrilly distorted, all the visions grotesquely exaggerated.

First Ellie screamed. It was a thin scream and seemed to come from far away. It was followed by a rasping sound that was more a low rattling throat noise than a human laugh. Stuart raised his eyes.

Kale stood before them!

The Plutonian seemed much taller than the two humans. His thin curved lips were arched in amusement. A deadly glitter shone from his ebony eyeballs. His haughty, contemptuous gaze rested on Stuart for a moment, then turned on Ellie.

"Please," Kale's voice was soft as heavy velvet, "please, I do not think that I have met this young lady."

Ellie's gaze was wide with fascinated horror. ". . . the dream—" she gasped. And Stuart felt her frail body go limp in his arms.

He let her slip to the ground. Kale's face became grotesquely large as he came very close to the young engineer.

"You promised you would not try to leave," he was saying, evil protruding through his thin mask of cordiality. "You have broken your word, Hill Stuart."

Stuart wasted no time on words. With the last bit of strength left in him, he drew the reaction-pistol from its holster. Kale's white face twisted in a ghastly grin as he watched the young engineer raise the gun.

Stuart pressed the trigger. Once, twice, three times the pistol spouted its flaming harbingers of death at the smiling Plutonian. Stuart saw the discharges strike Kale, twice in the heart and once in the throat. But the satanic Plutonian seemed unaffected. His skull-like face contorted in a horrible chuckle, and he advanced menacingly on Stuart.

The young engineer felt the gray mist suffocating him. Kale's figure became a blurred flickering of black and white. Day became night, black as an abyss. . . .

When Hill Stuart opened his eyes, the gray mist was as thick as ever. How long had he lain here? A few minutes? An hour? He had no way of telling.

He turned to rouse Ellie. *She was gone!* Stuart felt sudden grief well up into his heart. He hadn't realized how much Ellie had come to mean to him, until this moment. The Plutonian fiend had taken her. Where? Stuart struggled to his feet and tried to batter his way further into the invisible gray wall.

It was useless. He could hardly move inches. The young engineer's jaw went hard as granite. There would be another way. There *must* be another way!

HE wheeled and marched grimly back to the village. In the Holden cottage, he told young Paul about his sister's disappearance. The lad took the news without undue emotion, but Stuart could see the anguish he was stifling.

"We've all got to get out of here," Stuart said, "before it's too late. I'm sure that Kale doesn't mean for any of us to leave here alive."

"But why?" Paul asked in wonderment. The boy was very thin and weak. He had hardly ventured from his cottage for days.

Stuart shook his head. "I don't know why. I don't even know how we're going to get out. But it's got to be done!"

Paul had just risen from his bed. He was washing, and the wall light shone directly upon his wan face. Stuart watched him absently, his brain occupied elsewhere with Ellie—and Kale—

Suddenly a curious expression came over the young engineer's face. He rose with a bound and seized Paul by the shoulder. The lad looked up at him, startled.

"Wait!" Stuart shot out. "Don't move."

The startled boy stood still. Stuart brought the movable wall light close to Paul's eyes. Then he slowly moved it away, watching the boy's pupils closely. Frowning, the young engineer did the same for himself—swinging the light close to his face, and moving it away, watching his own eyes in the mirror that hung from the wall.

After awhile, he seemed satisfied and replaced the light in its holder. Paul regarded him wonderingly.

"Our eyes have *no pupillary reflex,*" Stuart said thoughtfully. "It must be true of the entire village. I noticed a queer haziness in the eyes of the people here on the first day, but the reason for it escaped me until now."

The young engineer ran his hand through his blond hair and continued, half to himself:

"Changes of light have no effect now on the pupils of our eyes—"

"What does that mean?"

"I don't know yet. It might mean that the muscles of our irises were paralyzed, or"—Stuart stopped short—*"it might mean that we are asleep!"*

"Asleep!" Paul echoed.

Stuart nodded. "Look, Paul," he said. "I know this will sound completely fantastic—but there are so many fantastic things on this planetoid, one more won't matter. I want you to lie

down and breathe normally. I'm going to count your respiration rate."

Paul looked at Stuart incredulously as he complied.

After two minutes, Stuart raised his eyes from his watch.

"Yes," he said. "Your respiration rate is about ten under normal. That's average—for a sleeping person!"

Paul rose. "Does that mean that everyone—all of us here in the village—are asleep!"

"I don't say that, Paul. But I do say that our bodies are reacting *as if we were asleep,* which may not be the same thing."

Paul stared at him without comprehension.

"But how—"

STUART shook his head. "I can't say, Paul. I'm just as much in the dark as you are. But I know that every hour we stay here decreases our chances of getting out alive. Go out and start rounding up the Tuckies. I'm going to find Bismer and tell him what we found!"

Paul nodded quickly The excitement brought a faint flush to his pale cheeks. Together, the two left the cottage.

Once again the Tuckies gathered on the brown earth before Bismer's cottage. Their leader's face was gaunt with worry as, without speaking, he motioned for Stuart to begin. The young engineer wasted no words.

"Ellie Holden has disappeared," he said grimly. "Kale has taken her."

There was a stunned silence among the Tuckies. Then one of the men jumped up.

"Well, what are we waiting for?" he asked shortly. "Let's go get him!"

Others rose. Angry sounds issued from many throats. Stuart held up his hand.

"Wait!" The Tuckies paused, turning toward the speaker.

"You can take my word, or you can all find out for yourselves quickly enough—we're prisoners here!"

The Tuckies stared incredulously. Stuart told them how he and Ellie had tried to get out, and how the gray wall had held them.

"Unless I greatly underestimate Kale," he said, "we'll find the same thing in every direction from the village. Trying would only use up whatever strength we have left."

In the silence that followed, several of the children began to whimper. The Tuckie women gathered them in their arms and soothed them.

"Well, what are we going to do?" someone cried. "Just squat here doin' nothing?"

"It's a long shot," Stuart told them, "and I can't explain now why I think it will do any good. But, first of all, everyone must stay out of the fields—keep away from the crops and forget about them, if you can. Second, when night comes *you must try not to sleep.*

"We've all noticed how quick and heavy sleep comes once we get in our cottages at night. Well, we've got to stay out of the cottages and fight off sleep. The lives of all of us may depend on doing these things!"

There was a bewildered silence. Mat Higgins rose. The brawny Tuckie had become visibly thinner in the past few days. His raw-boned frame stooped like a drawn birch bow, and his fierce head stuck out almost at right angles to his body.

"No one can say Mat Higgins don't admit when he's wrong," he said. "I'm in favor of following out Hill Stuart's orders and not askin' any questions about 'em, either."

A low chorus of "ayes" seconded the speaker. Stuart nodded to Bismer.

The old Tuckie got to his feet. "I reckon that's all, folks. We'll bunk out here on the ground tonight. And everyone'll keep out o' the cottages and stay away from the crops."

The rays of the sinking sun struck golden sparks from the tasseled heads of wheat that swayed in the breeze. Stuart walked to the edge of the fields, and stood there taking in the scene. Paul Holden was helping Bismer supervise the preparations for camping in the open. There was nothing further for the young engineer to do.

HE watched the gaudy-hued Luxor sunset. Heavy crimsons and vivid purples in the sky provided a dramatic setting for the yellow corn, the blue grape clusters and the golden brown earth. Each hue was brilliantly distinct, yet inexplicably merged with those around it. Stuart had never witnessed such a display of pure color pyrotechnics. It was a bizarre sight—an unreal sight.

As he stood there, it seemed to the young engineer that the brilliant landscape began suddenly to waver before his eyes. The colors seemed to swirl madly around each other, and at the same time the earth seemed to shake violently. The vibration reached his brain, blurring his vision, dazing him. The earth seemed to sink from under his feet, and he felt himself losing consciousness. . . .

CHAPTER V

To the Rescue!

STUART felt that someone was shaking him roughly by the shoulder. He opened his eyes and found that he was in partial darkness. He was lying flat on his back on some sort of bed. Shadowy figures stood around him.

The hand on his shoulder relaxed its grip. Stuart looked up and made out Kale's face. The Plutonian was watching him intently, a satisfied smile on his ivory countenance.

"You will get up now and come with me, Hill Stuart," he said. "And please come quietly." He half gestured to indicate three Plutonian guards who stood, rifles in hand, at the foot of the bed.

Stuart rose, shaking his head to clear the cobwebs from his brain. He was in some sort of natural cavern. The walls and the floor seemed to be of solid rock. As his eyes became more accustomed to the dimness, the young engineer made out other small cots such as the one he had been on. There were dozens of them, for as far as his eye could see. And on each cot lay a recumbent Tuckie—*asleep!*

"Yes," Kale murmured softly, "they are all asleep. You see how well I care for my guests on Luxor!"

Stuart's fists clenched and he stepped toward the mocking Plutonian. The guards raised their rifles and stopped him.

Kale merely smiled. "Come," he said.

Stuart followed in silence, the armed Plutonians bringing up the rear. Light showed ahead of them. As they approached it, Stuart saw other Plutonian guards lined against the wall on both sides, perhaps two dozen of them — Kale's private army.

Kale led the young engineer out of the cavern's mouth and through a patch of dense foliage. In a few moments, Stuart emerged into daylight. The familiar landing field was directly before him. Kale's house was scarcely a hundred yards away.

In the room that looked out on the landing field, Kale regarded the young engineer with something akin to ad-

miration. The two were facing each other across the metal desk. The ever-present guards watched mutely from across the room.

"I have found," the Plutonian was saying, "that you are really not an Interplanetary man, Hill Stuart. But I pay you the tribute of informing you that no Interplanetary **man ever** troubled me as much as you did."

Stuart eyed the Plutonian stonily. His brain was intent on seizing the first chance to make a break.

"Please notice," Kale said almost affably, "that I use the past tense—*did*. I do so intentionally. For after this day, you will find it most difficult to trouble anyone."

"Where is Ellie Holden?" Stuart asked in a low voice.

Kale smiled. "I'm sure you will be happy to know that she is quite safe—and well. And it also might interest you to find that Ellie Holden has promised to be my wife. As a matter of fact, only your—shall I say 'liquidation' is preventing us from starting immediately on our honeymoon trip!"

"You couldn't do that!" Stuart burst out. "The girl loathes you!"

Kale's affability suddenly dropped like a cloak. His black eyeballs glared malevolently at the young engineer.

"That's a lie," he hissed. "Ellie Holden loves me!"

This time it was Stuart's mouth that curved in a mocking smile.

"Then why," he asked softly, "does she faint at the sight of you?"

KALE'S face worked insanely. For a moment, Stuart thought the dapper Plutonian was going to spring upon him. But instead he wheeled and uttered a sharp command to the guards.

The two minions came forward and motioned with their rifles for Stuart to walk ahead of them to the door. The young engineer rose. His jaw was set, but his hands swung loosely, ready for action, at his side. If he was going to be shot down anyway, he might as well make a contest out of it.

Suddenly Kale addressed him. The Plutonian had regained his composure rapidly. The gaze which rested on Stuart was half contemptuous, half amused.

"One thing piques my curiosity, Hill Stuart. Before we part, perhaps you will be sporting enough to inform me. By what reasoning did you tell the migrants to *fight off sleep?*"

Stuart played for time, edging imperceptibly toward the nearest guard.

"Why, it was simple, Kale," he said easily. "Once I discovered that our bodies were reacting as if we were asleep, the logical conclusion was that something was happening at night — when we *thought* we were asleep—that was weakening us. Ellie gave me the first clue when she dreamt of you without ever having seen you. That was a bad mistake, Kale."

Stuart's right hand was under the guard's elbow now. His chance of getting away alive was slim, but he was all ready to take it, when a familiar sound came to him. From out in the sky, there came a series of explosions that heralded the arrival of a space ship.

Kale heard it, too. The Plutonian whipped out a command to the guards and they brought Stuart back from the threshold.

There was a crescendo of blasting sounds outside, a loud grating noise, and then silence. The ship had landed.

Kale turned to Stuart with a mocking grin. "This, my young friend, means merely a postponement—not a pardon. You will be kind enough to remain seated at the desk while I get rid of these stupid visitors, whoever they are. If you are not quiet, my guards have

orders to shoot you down at once."

The Plutonian straightened his immaculate tunic, brushed an invisible speck from his shoulder and walked out.

From his seat near the window, Stuart saw that the ship was an ordinary pleasure cruiser—not an Interplanetary spaceboat as he had hoped. The side door had opened, steps were lowered, and a man who looked like the pilot descended to the ground.

Kale advanced to meet him. The Plutonian bowed in his dandified manner and shook the pilot's hand. The pilot seemed to be asking some questions. Kale listened politely. Then he began to talk, using his graceful fluid gestures.

At length, the pilot nodded and mounted the steps again. Stuart's heart sank as he watched him disappear into the ship. Kale waved his hand as if in good-by to those within.

But the door of the space ship did not swing closed. Instead, the figure of a stout woman appeared in the doorway. She was mannishly dressed, but even from fifty feet away her sex was undeniable. As she descended to the ground, another mannish figure appeared and started down. She was followed by a third, and a fourth, until a dozen women stood on the ground confronting Kale.

THE first had her hands planted firmly on her hips and her legs were wide apart. The strange eyes of the Plutonian did not appear to bother her in the least.

"What do you mean," she demanded in a voice loud enough for Stuart to hear, "by not properly equipping your landing field with radio directors? You almost succeeded in killing all of us. I don't know who you are, but rest assured this will be reported to the proper authorities!"

The proper authorities! Tourist ladies, by all that was holy!

Stuart watched the encounter eagerly. Kale seemed to be explaining something that the young engineer could not catch. The Plutonian had donned his suavest manner, his gestures were worthy of a great actor. But his efforts were lost on the stout woman leader. She cut him short with a fierce glare.

"Why, *of course* you have accommodations! It's perfectly *ridiculous* to say you have none! We don't *intend* to travel a mile further today!"

Kale again tried to explain. He was moving backward step by step under the pressure of the dozen robust ladies. At length, the stout leader waved him aside with her hand.

"That's all nonsense!" she cried. "We're used to roughing it. Let us see whatever you have here."

And the whole entourage moved past Kale like a huge wave, coming toward Stuart. The young engineer felt like kissing each and every one of the sturdy females.

"God bless all lady tourists!" his heart was singing.

Then suddenly he noticed that Kale had disappeared. A moment later, the Plutonian emerged from one of the smaller buildings, carrying the inert body of Ellie Holden. He walked rapidly to the side of his shiny space ship and, opening the hatch, placed Ellie inside.

At that instant, Stuart noticed the two Plutonian guards waver. It was obvious even to these dumb brutes that their leader intended to desert them.

Stuart's sideward motion and dive was poetry in movement. He knocked the first guard off his feet, his rifle going off harmlessly in the air. From the ground, Stuart kicked the gun out of the other guard's hands before he could

shoot. Then he rose, delivered a short right uppercut to the man's square jaw, and was halfway through the window when the fellow folded up.

As Stuart scrambled through the window, several shots rang out on the landing field. Stuart saw that Stromb, Kale's agent, was shooting at the Plutonian leader, who stood near the space ship. As Stuart ran forward, Kale coolly raised his pistol, took careful aim at Stromb and dropped the little man in his tracks.

Then the Plutonian turned and began to climb quickly into the space ship. Stuart put on an extra burst of speed, but he was still thirty yards away. It looked like Kale would get away with Ellie Holden in spite of everything. But suddenly the pilot of the pleasure cruiser appeared behind the Plutonian and grappled with the cynical leader.

The fight was short and ended with the pilot on the ground, another victim of Kale's pistol. But it gave Stuart just enough time to reach the Plutonian before Kale could close the hatch of his ship behind him.

As Stuart vaulted into the ship, he heard Kale's pistol go off and felt the heat singe his temple. Before the Plutonian could fire again, Stuart smashed the pistol from his hand.

From that point on the fight was as unequal as it was short. It consisted very largely of a single round-house right, very unscientific but very effective, that exploded on the point of Kale's delicate jaw. The Plutonian went down like a wilted leaf.

CHAPTER VI

The Last Act

AN hour later, Kale was securely bound and packed on the cruiser for transshipment to a Plutonian prison. The cruise pilot informed Stuart that he was really an Interplanetary man—though this hadn't been an official trip exactly.

"You see," he said to Stuart as the two walked back to Kale's house, "Sergeant O'Connell got kind of worried about you and the Tuckies. We couldn't send a man out here, because Kale had got out an injunction against searches. But O'Connell told the tourist ladies about you and asked them to take a trip here, just to look around. They jumped at the chance to iron out some trouble—that's the way tourist ladies are."

Stuart grinned. "I never thought I would be so glad to see those rambunctious females. But, man, when they piled out of that ship and rode right over Kale!" The pilot chuckled in understanding.

In the house, Stromb sat near the metal desk. The little man's head had been grazed by Kale's pistol but he was otherwise unharmed. Stuart learned that some of the tourist ladies had gone, under Stromb's direction, to awaken the sleeping Tuckies. The rest were in an upstairs room taking care of Ellie Holden. All in all, they had Luxor pretty well in hand.

Stuart and the pilot were sitting next to Stromb.

"I think I can promise you leniency, Stromb," the space ship pilot said, "if you'll coöperate with us and tell everything you know about this place."

"There isn't very much to tell," the little man said. "Kale has been running *lethe* for three years. You couldn't find it before, because the weed grows in underground caverns on Luxor. And these caverns are pretty hard to find unless you know where to look.

"Lately, Kale had a lot of trouble getting men to work in the caverns. Many got sick and others just quit. That Plu-

tonian devil had learned a lot of science somewhere. I never learned much about him, but I know he traveled a lot before he came to Luxor.

"He invented a kind of television machine that transmitted *dreams*. It didn't transmit the whole dream — just provided the setting. The *wishes* of the people dreaming did the rest. They believed in the dream because they wanted to believe in it. But they only slept four or five hours, actually. The rest of the time, they were picking *lethe*, drugged by a certain mixture of the weed that Kale discovered."

Stuart gritted his teeth. "That's why we became so weak!"

Stromb nodded. "That and the *lethe-vapor*. After six months here, I was sick of the whole business and I wanted to quit. But Kale wouldn't let me go—he would have killed me without batting an eyelash! I'll never rest easy until he's safe behind bars."

"He will be very soon," the pilot said grimly. "*Lethe* running, forced labor, and an attempted kidnaping. He'll have to live as long as Methuselah to outlast the sentence he's going to get!"

The door opened and Art Bismer entered. The old Tuckie was obviously puzzled by what had just occurred. Stuart explained everything to him briefly.

Bismer rubbed his chin reflectively. For once, he had no straw in his mouth.

"Well," he said, "I guess it's the open skies for us Tuckies again. You know, I hate to be near the rest of my folks when they find out the village was nothin' but a dream!"

THE cruise pilot looked at Bismer. "Maybe the dream'll come true this time," he said. "There's a lot of tillable land on the other side of Luxor that Kale never touched. He wasn't interested in land, as you were. I don't think it's ever been farmed—but you can try."

"Who owns it?"

"Well, Kale did, but he don't any more. I guess it'll belong to the first parties that get there."

Bismer's lean face broke into a broad grin. "Well, I'll be damned!" he said. "Wait'll the rest hear about this!"

The door across the room opened, and this time it was Ellie Holden who entered. Behind her loomed the formidable figure of the stout tourist lady.

"This girl," the respectable Amazon boomed at Stuart, "kept calling your name while she was unconscious. What are you going to do about it?"

Ellie was very close to him now, her limpid brown eyes looking deep into his. Stuart hardly hesitated before "doing something about it." What he did was to ignore the fact that the room was full of people, and gather Ellie Holden hungrily to him.

After a moment, the space ship pilot coughed politely.

"I guess we'll be starting back to Pluto," he said, "before Sergeant O'Connell sends the whole force out here!"

He looked at Stuart. "Can I give you a lift?"

Stuart shook his head. "No, thanks. There's land here—and a lot of other things I know I'm going to like."

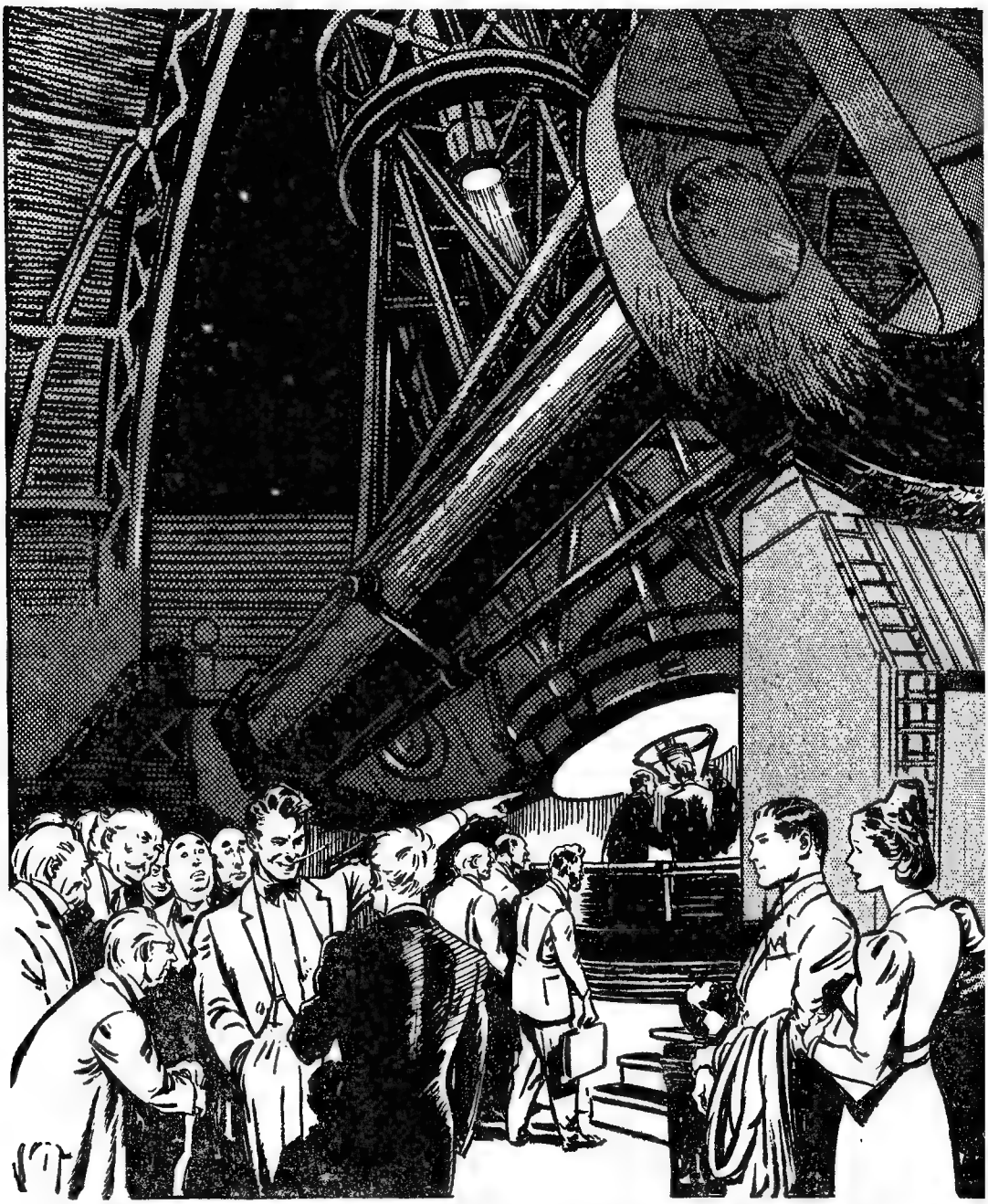
Bismer said in mock surprise, "Why, Hill, you know what you always used to say—'a meteor gathers no cosmic dust'!"

"Well," Hill Stuart smiled, gazing down on Ellie, "I got an idea I'm going to like cosmic dust now."

And once again the young engineer acted as if he and Ellie were alone in the room. As a matter of fact, in a very few moments they were.

☆ ☆ ☆

The Scientific



With calm nonchalance Hank Cleaver answered the questions of the incredulous scientists

Pioneer

By Nelson S. Bond

Horse-Sense Hank could answer all the problems of science. He could even apply logic to love. But turnips. . . !

ONE thing about that heap of mine, it always picks the loneliest places to roll over and play doggo. It started spluttering about the time the road changed from concrete to macadam, and when the macadam trickled into a thin silver of bumpy dirt it wheezed, snorted, and gave up the ghost.

I said, "Damn!" and a few things more expressive. I got out and struggled with the hood and looked at the innards and admired their incomprehensible compactness. I jiggled a few wires here and there and nothing happened. Then I looked for telephone wires. There were none. But I discovered that I wasn't alone. There was a man leaning on the worm fence across the road, watching me with drawling incuriosity.

I said, "Hey, you! Is there a telephone anywhere around these parts?"

He shifted a billiard ball from his left cheek to his right, squinted, and shook his head.

"Nup," he said.

"How about a garage?" I asked. "How far is it to the nearest garage?"

He bobbed his head northward. "Two mile. Mebbe two'n a half," he said.

"Thanks," I told him, "for the poisonous information."

I locked the car and started in the direction he had pointed out. I had taken a dozen steps when he halted me.

"Swim good?" he asked.

I looked at him, then at the dull, gray, February sky, then at the dappled patches of unthawed snow clinging to the roots and hollows.

"I'm a duck," I said, "not a penguin. I stick to hot water in the winter. I hold the All-American free-style record for February bathtub paddling. Why?"

"That's what," he said, "I figgered. You can't go thataway, then. Bridge is out, an' river's half a mile wide. You better go 'tother direction."

I glared at him. "Say it," I said. "How far?"

"Fifteen miles," he guessed. "Sixteen, more like."

"Sixteen miles!" I did the only thing I could think of. I kicked my buggy in the bumper, then collapsed onto the running board.

"Hell's beacons, man, I can't walk that far! Not without my Boy Scout axe. What am I going to do? I've got to get to Westville before dark, my car's on the squeegee, and so far as I'm concerned that thing under the hood is a deep, dark mystery."

He said, "Let's see," interestedly, and gangled over the fence. He lifted the hood and stared into the maw of my

crate. His eyes darted from one piece of machinery to another; after a while he began to mumble to himself, and once he nodded.

Then he muttered, " 'Pears like it oughta be this 'un here—" and reached in and touched something. It clinked. He tightened it.

"Try 'er now," he said. "Wiggle somethin'. Make 'er go."

"Sure," I said caustically. "All I need is a nice long hill."

BUT I climbed in and kicked the starter. Then I yelled. Because the old jalopy gave one disgusted snort, then began to purr like a fireside tabby!

"She roars," he said, "purty. Don't she?"

"She do, indeed," I told him exuberantly. "Say, friend, why didn't you tell me you were a mechanic? You've saved me three aspirins and a broken arch."

"Me a mechanic?" he drawled. "Shucks, Mister, I ain't never seen the innards of one of them things before."

"You've never—" I chuckled. "Cut the comedy. Then how did you know what to do to make it start?"

He squirmed, a trifle embarrassedly, I thought, and shuffled his feet.

"Well, now, it just stood to reason," he said. "Seemed like that thingamajig hangin' on the whatchamaycallit should've—"

I grinned. "Okay, pal. You've got secrets, I've got secrets, all God's children got secrets. Anyhow, thanks for the first-aid. Here's a little something for your—"

But he shook his head. "Aw, that's all right," he mumbled. " 'Twarn't nothin', Mister. So long." He grinned and ambled off across the field. And that was that.

I reached Westville before dark, found the man I'd been sent out to interview, and told him who I was.

"I'm Jim Blakeson," I said. "There's a rumor that I'm the Public Relations Department for Midland University. It's a phony. Between you and me and the League of Nations, I'm really the third assistant errand boy for Culture, Inc. Now—about this new comet you discovered.

"Midland is all upsy-daisy to find such such a promising young amateur astronomer in the state. They're willing to subsidize you to the extent of a newer and larger telescope if you'll agree to act as a lay member of their observatory staff. What say?"

The ham star-gazer—Hawkins was his name—turned a delicate shade of mauve. It was happiness, I think. For a minute I thought he was going to kiss me. Then delight went out and he shook his head.

"I'm sorry, Mr. Blakeson, but I can't accept your offer. I'd love to, but the truth of the matter is—I'm not the man who discovered that comet."

I said, "Wait a minute. Maybe I'm in the wrong galaxy. You're Hawkins, aren't you? You're the guy who plotted the comet's course, no?"

"I'm Hawkins. I plotted its course. But I didn't discover it." His spirits were down around his shoelaces now. "That was done by a neighbor of mine, a few miles down the way. Chap by the name of Hank Cleaver. 'Horse-sense Hank', we call him."

My extra-sensory perception perceipted. "Don't look now," I said, "but is this Horse-sense Hank a long cold drink of wisdom about thirty years old? Given to lack of speech and habit of chewing tobacco?"

"That's Hank," said the youngster. "He's the one. He's no astronomer, you understand. But he happened to stop around one night while I was charting. I started to explain some-

thing about cometary orbits, and after a while he said he 'lowed as how I ought to take a careful look in the region of Beta Draconis. I did, and—well, there it was. The new comet. He said he just figured as how there ought to be one there!"

"Kid," I said solemnly, "something tells me the discovery of that comet was peanuts. Just peanuts. I'm going to get you that subsidy, anyway. And tomorrow morning I'm going back to have another talk with the guy who earned it for you."

SO I did. I found Horse-sense Hank poking around in his south forty and told him what I wanted. He didn't answer for so long that I thought maybe the shock had killed him.

I asked anxiously, "Well, Hank? What's the word?"

"Turnips," he said mournfully, "is hell. It don't matter where you plant 'em or how careful. They never do what you expect. Oh, you mean about the University? Well, I don't guess it would do no harm. I'll go if you want me to."

"I do," I told him with savage satisfaction. "All my life I've wanted to see what would happen when a man with plain, ordinary horse-sense crossed gray matter with a bunch of animated reference books. You're the party of the first part. Look, Hank—suppose you were out hunting with another guy. You see the flash of his gun; ten seconds later you hear the boom. How far away from him are you?"

"A game, mebbe?" asked Hank. He pondered for a minute while I waited, wondering if I'd cleaned the machine the first time or if this were a perpetual jackpot.

Then, "How cold is it?" asked Hank.

I almost yelped with joy. "Say about sixty-eight," I said.

Hank said, "Well, then, I reckon he'd be 'bout two mile off. Trifle more, mebbe."

"Why?" I demanded. "How did you know?"

Hank looked perplexed. He said, "Well, it seems as if. That's all."

"And *that,*" I told him, "is all I wanted to know! Come on, my friend. Let's go puzzle pedagogues!"

* * *

The only thing stuffier than the office of H. Logan MacDowell, Midland University's president, was H. Logan himself. Hank and I entered the outer office, ran a gantlet of upturned noses, and were finally informed by a pair of glinting pince-nez that "Dr. MacDowell will see you now, if you please". We pleased.

Beauty and the Beast greeted us. H. Logan's daughter might be a chippie off the old blockhead, but they look as much alike as me and my passport picture. She smiled at us as we entered, and life was all sugar and Santa Claus. Our pal the prexy lurched and wobbled in the depths of his swivel-chair, gave it up as a bad job, motioned us to seats and *hrrumphed!*

"Well, Blakeson, might I interrogate as to the reason for this unexpected visitation?"

"If," I deciphered, "you mean why am I here, sure! This is an unveiling. Take off your polysyllables, Doctor. You're in the presence of genius."

"Genius?" MacDowell stared distastefully at Hank's mail-order suit and bulldog shoes. "Genius?"

"When you say that," I advised, "grovel. You see before you, Doc, a man deserving of the finest faculty position dear old M. U. has to offer. Meet Hank Cleaver, the human slide rule!"

MACDOWELL frowned. "I deplore, Blakeson, your unacademic

speech habits. Furthermore, you are undoubtedly aware that there are at present no unoccupied seats on the Midland faculty. If your friend would care to deposit his credentials with my secretary, however, and write an application for admittance to our staff —"

Horse-sense Hank's eyes accused mine. "Write, Jim? Shucks, you didn't tell me I had to write nothin'. You know I can't write."

Indignation overcame Prexy MacDowell's inertia. He came to his feet quivering like a radium finder in a bucket full of pitchblende.

"What! Blakeson, do you mean to tell me you have the effrontery to suggest for addition to our faculty a man who can neither read nor write? Young man, this time you have gone too far! I fail to recognize the humor in this situation. I'll have you—"

"Look, Prexy," I said, "sit down and take the load off your brains. You didn't hire me, and you can't fire me. I report to the Advisory Council. Now, listen to me. This man is the greatest find since Pharoah's daughter went snipe hunting in the bulrushes. He knows stuff and things."

"Stuff?" wheezed the college president. "Things?"

"Ask him. Anything at all. He's got more answers than a quiz program."

MacDowell stiffened like a strychnine victim. "I refuse," he proclaimed stentoriously, "to lend myself to such a display. The dignity of my office—"

Helen MacDowell had been staring at Hank with frank curiosity.

Now she said, "Papa, why don't you follow Jim's suggestion? Ask Mr. Cleaver a question."

That got him. "Very well," he said. "I will ask a single question. But if he fails to answer it—"

He had a dirty look in his eyes. I said, "Serve it straight, Doc. No tricky place names or technical phrases."

"I shall merely ask our rustic friend," said MacDowell stiffly, "to explain to us the fundamental laws of motion as established by Sir Isaac Newton." And he glared at Hank and me malevolently.

Merely! I looked at Hank, and the blank expression on his pan gave me the queasies. He said wonderingly.

"Sir Isaac Newton, Jim? Who's he?"

"Skip that part, Hank," I advised. "What the Doc wants to know is: what natural laws apply to things moving? You know—what do they have to do or can't do?"

"Oh!" Hank's brow furrowed. He knotted his ham-like paws and unknotted them again. Finally a light shone in his eyes and he said.

"Well, far's I can see, fust thing is that they can't get goin' by themselves, or if once they do, they can't stop less'n somethin' stops 'em."

I glanced at MacDowell, who had gulped audibly. I said.

"Keep going, guy. You're hot as a firecracker."

"Well, seems like everything in motion makes an equal motion like itself, an' it don't matter whether what it acts on is still or movin'. An' if there's anything else actin' along with it, both movements is goin' to have a say in the showdown."

ME, I'm a publicity man, not a physicist. It was all a deep fog in my mind, but MacDowell's eyes were bulging.

"Go on!" he ordered grimly.

"Lastwise," drawled Hank, " 'Pears like whenever there's a movement one way, there ought to be an equal kickback 'tother way." He hesitated for a

long moment. Then he shrugged. "Reckon that's all I can think of offhand."

MacDowell repeated n u m b l y, "That's all he can think of—offhand!" and staggered to his chair. He tottered for seconds, then dropped into it. "The product of a genius' thoughts for years. And he solves it in five minutes!"

Then he snapped out of it, and was he sore!

"You, Blakeson!" he yelled.

"Yeah?"

"This is one of your tricks! What do you mean by this outrageous imposter? You can't deceive *me!* This man has studied physics. He knows—"

"Physics?" interrupted Hank eagerly. "Say, you're darn tootin' I've studied physics. An' take it from me, all these here now drugstore things ain't no good. You get you a batch of fresh wild-cherry saplings, bile 'em in water for a half hour, an' add—"

"Quiet," I pleaded, "is requested for the sake of those who are asleep. Dr. MacDowell, I give you my word of honor Hank is just what he appears to be. A man of the soil, gifted with great talents. Of rather, *one* great talent—that of common sense."

"A — a moment!" MacDowell silenced me with an uplifted palm. "Mr. Cleaver, are you acquainted with the principles of Mendel?"

"Nup!" acknowledged Hank cheerfully.

"Perhaps, then, you'd be kind enough to derive an answer for this question? A man has a black dog and a white one. He mates them. The female whelps four puppies. Of the four, how many will you expect to be black, how many white?"

Horse-sense Hank cast a sidelong glance at Helen, and blushed. But he didn't bat an eyelash.

"This here now black hound, what color was his old man an' woman?"

"They were also black."

"An' 'tother one's mammy an' pappy was white?"

"We will," said Dr. MacDowell weakly "assume that to be so." He knew he had lost again. And so he had. For Hank's answer was bland simplicity.

"Why, then, them there pups would just natcherally hafta be all black."

"H-how do you know?" demanded MacDowell faintly.

"Just seems as if," said Hank. He scratched his head. " 'Course," he said cautiously, "them there wouldn't be good show dogs, them pups. They wouldn't breed true wuth a damn. Next time they was mated, their pups would be mixed colors. I'd say 'bout three to one for the blacks." *

President MacDowell shuddered violently. He fell back into his chair, covered his eyes with shaking fingers.

"Take him away!" he pleaded. "A lifetime of study, and— Get him out of my sight, Jim Blakeson! *Oooooh!"*

The last I saw of him, he was ripping the diplomas off his office walls, tearing them into shreds of despair.

SO that was that. But Horse-sense Hank didn't go back to his turnip patch. Because Helen MacDowell followed us from the office, her eyes glowing.

She said, "He's marvelous, Jim. Marvelous! What are you going to do now?"

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*The two fundamental principles usually termed Mendelian are: (1) that of alternative inheritance, viz., that of two corresponding but contrasted pairs of characters of the parents, only one appears in the offspring. This is known as the dominant character; the character not appearing is the recessive character. (2) The law of segregation of characters, according to which both dominant and recessive characters reappear pure in 25% each of the offspring of hybrids.—Ed.

"I was thinking," I told her gloomily, "of trying a perfect crime with your old man as 'X-marks-the-spot.' Any objections?"

She said thoughtfully, "You might wait till I get next month's allowance. Daddy's not bad when you get used to him, Jim. But I mean about Mr. Cleaver. Is he planning to stay here in town?"

Hank shuffled his feet. "Seems if I oughta go on back to my turnips," he opined. "Durn things'll go to seed if I don't."

Helen turned it on, and what I mean, when she did it really went on. Her smile wasn't even directed my way, but I caught the backwash and made next year's New Year resolutions ten months in advance.

"But how disappointing, Mr. Cleaver! I was hoping we might have dinner somewhere and talk a little while—"

"Great idea!" I said. I'll call Tony's—"

"—just the two of us," she continued, "alone."

Hank swallowed with difficulty. And stayed. Who wouldn't?

So I put him up at my apartment. At first he demurred.

"I don't wanta be no expense to you, Jim," he protested.

But he wasn't. Because one night I took him to the College Clubbe, a gambling joint on the outskirts of town. He looked awful in a rented dinner jacket; the smartly garbed croupiers laughed when he walked into the casino. But he who laughs last, laughs last. We moved to the roulette table and watched for a few minutes.

Finally red came up three times running. So when the croupier called for bets, I laid a couple chips on the black. Hank frowned. As the white ball rattled around in its groove he reached out suddenly, moved my chips to the other side of the board, to the red.

I said, "Hey, wait a minute, guy! Don't be a—"

Then the ball stopped rolling and the attendant purred, "Twenty-one red, *passé!*" and raked to my little bet an equal number of chips.

I pointed at the neat, even rows of chips and bills stacked before the croupier.

"You see that stuff, my friend? That's money, not hay. You may be a genius at some things, but this is the old gambola. A risk any way you look at it. Lay off my bets!"

And this time I moved my entire bet to the black column. Why not? It was due.

But Hank said plaintively, "Shucks, Jim, it stands to reason—"

And once again he reached out and shifted my bet to the red. Someone in the crowd snickered. I went to move it back but the croupier, faintly haughty, said.

"No further play, sir, if you please!"

Then the ball stopped—on the red 36!

I LOOKED at Hank. He looked back guiltily.

"It seemed like it ought to, Jim," he said.

I gave up. I handed him my chips. I said, "This is where I get off. Take over, Professor. I've got to see a man about a town car!"

And I walked to the bar for a drink. I felt sort of sorry for the owners of the College Clubbe. It was tough luck for them that, after all these years, they should be the ones to play host to the first fool-proof "system" in the history of gambling.

About twenty minutes later the crowd was shoulder deep about the roulette table. I decided it was time to go

take a look-see, and fought my way to Hank's side. When I reached there I found that play had been temporarily halted.

The croupier, green-gilled and glistening with sweat, stood before an almost chipless board. The counters were chin-high before Hank. The manager pressed through, spoke briefly to the croupier, then turned to Hank.

"I understand, sir, you wish to make a final wager against the house. Your entire stake on the fall of a single number?"

Hank nodded, embarrassed at being the center of attention.

"I sorta thought," he gulped, "it might be smart."

I groaned. The chips before Hank were a rainbow. At a rough estimate, he was about thirty grand to the pink. To stake all that on one roll—a 38-to-1 shot for a 35-to-1 return—

"No, Hank!" I tugged his coat sleeve. "Cash in! Don't take a crazy chance like that!"

He looked at me aggrievedly. "But it ain't what you might call a chance, Jim. 'Pears to me like it's a sure thing for number nineteen to come up. Way I see it—" He nodded to the manager. "Let 'er ride. The works on number nineteen."

The manager nodded to the croupier, the croupier set the tiny ball spinning. The crowd tensed, and a white blur chittered its unpredictable path about the whirling wheel. The wheel slowed, the ball slowed, my heart slowed. Then all three swooped into action, the last with a lurching thump. The ball hesitated on the rim of the double-zero, bounced to the 32, jogged to the lip of the 19, settled there—

Then hopped! The watchers groaned, and the voice of the croupier was a high, thin bleat.

"Twenty-four—black—*passé!*"

My town car, my penthouse and my financial independence went whuppety-flicker, like the tag end of a film racheting through a projector. I glared into Hank's bewildered face, bawled at him accusingly,

"See, you dope! All because you—"

He looked dazed, incredulous. He looked dazed, incredulous. He stammered,

"But it *had* to be the nineteen, Jim! It couldn't be anything else, don't you see? It *couldn't—*"

"It couldn't," I wailed, "but it was! You—"

Then he was no longer limp, uncertain, at my side. He was making a leaping dive across the table at the croupier. The man yipped once, lunged backward, and a pellet rolled from his hand. It was a duplicate of that which now spun in the roulette wheel, but not *quite* a dupe!

INSTEAD of solid ivory, I knew it would turn out to have a steel core, responsive to magnetic influence. The only thing that could break down the analytical perfection of Horse-sense Hank was a gimmick! A gimmick is a polite way of describing a cheap gambling trick.

"The durned crook!" Hank was howling. "He gypped me! I knew the nineteen was due! Just as sure as fate it was due!"

Those were the last intelligible words for quite a while. For at that instant some resourceful employee jerked a switch, plunging the College Clubbe into darkness. People began to scream and struggle and run. I heard the meaty impact of flesh on flesh, then the clatter of ivory tokens on the polished flooring.

I remember thinking sadly, "Goodbye, Mr. Chips!"

Then a more brilliant thought struck

me. I remembered that those ivories were cashable at any time. Tomorrow! After the excitement had died down. I scrambled for the abandoned table, scooped up two double handfuls, then two more. It was our money, rightly.

I hightailed it for the exit. It took me a little time to get away. Everyone else had the same idea. But I finally made it. There was no use looking for Hank in that mob, so I grabbed a taxi to town, hoping he'd be able to come home under his own power.

But he was already home when I got there. He was just finishing a financial census at my desk, dreamily counting crisp, crunchy bills into piles before him.

"—and seventy-eight, eight hundred and seventy-nine—" He saw me and grinned. "Hi, Jim! Got part of what I deserved, anyhow. See? 'Bout six thousan' bucks!"

I sniffed. "Chicken feed! I've got the rest of it. The *real* stuff! Ten buck chips!"

With a calm, superior smile I began to unload my colorful cargo beside his pile of green. But Hank didn't look enthusiastic. I waited for the ooohs and aaahs, and when none came I snapped,

"Well, what's the matter? You sore because I made out better than you did?"

He shifted uncomfortably and refused to meet my eye. He said,

"Well, it ain't exactly that, Jim. Only—"

"Only what?"

"Only," he gulped, "them chips ain't gonna do much good, way I figger. 'Pears to me like after what happened tonight, that there place ain't never gonna open up no more."

He was right, of course. Hank was always right. I still have two hatfuls of roulette chips; you can have them, parcel post collect. The College Clubbe folded the next morning, but the story of why it collapsed got around. And Hank became something of a celebrity.

That's how, in spite of Doc MacDowell's pigheadedness, the rest of the Midland University faculty got to hear about my rural protégé. To hear was to visit; to visit was to listen with awe. They handed him stumpers; he uprooted them and handed them back with Q. E. D.'s tacked on them.

At first, Horse-sense Hank was a sort of perambulating parlor game to the professoriat. They came and tried out on him the trick questions to which they —and presumably only they—knew the answers. No soap! They asked him about the variable nature of light waves; he derived, alone and unaided, a formula which Professor Hallowell of the Physics Department identified as the Lorentz-Fitzgerald contraction.

THEY asked him about electronic structures. First they had to tell him what an electron was; after that, he did the talking. He confused me and practically everyone else present. He kept talking about a "whatchamaycallit." Finally Dr. Enderby of the Blair Research Foundation pinned him down as to the exact nature of this mysterious something.

Blair grayed visibly when he discovered that Hank's "whatchamaycallit" was identical in meaning, value and structure with *h*—that abstruse physical concept known as Planck's constant.

Hank offered apologetically, "They ain't no word to describe it exactly. It—well, it just *is*, that's all. I reckon if you wanted to, you could say it was the diff'rence in energy values in them there light rays we been talkin' about. But that ain't all. It's more'n that. It's also the amount of diff'rence in the way

things are. I mean, when you bet or gamble, the whatchamaycallit comes into the picture."

Blair wept. "Heisenberg! The uncertainty factor! Identical with Planck's constant!" He went home gibbering.

Then the graybeards realized that Hank was not just a freak; he was the Answer Man in person. They started digging up toughies that had stymied them for years. They served them in simple language and Hank dished up replies in homespun.

Me, I don't pretend to understand half the stuff I heard them talking about. So you'll have to overlook it if I botch the job of retelling. I recall hearing an astronomer ask one night,

"Mr. Cleaver, what in your opinion is the explanation of the observed fact that celestial bodies apparently always move in conic sections of elliptic or infinite orbits?"

Hank twiddled his fingers and said, "Why, 'pears to me that's on account of nature is lazy."

Someone ejaculated, "Nature lazy?"

"Sure. Movin' things take the shortest path."

The astronomer, frankly dubious, said, "But, really! An ellipse could hardly do that because a 'shortest path'—"

"No?" said Hank. "You take a flat piece of paper. The quickest way acrost it is a straight line, ain't it?"

"Naturally."

"You take a globe of the world, though, an' things don't work the same. You want to go from, say, Los Angeles to Japan, you wouldn't follow straight across one of them lines of latitude, would you? You'd sort of hump up by way of Alaska."

A listener nodded eagerly. "That's right. You'd take the arc of a great circle. The Great Circle route."

"Well," said Hank, "same thing in the universe—which has got, near's I can figger out, another right angle in it besides the ones we know an' see."

"You mean another dimension? A fourth dimension?"

"Call it that. Anyhow, in this sort of super-globe which has four dimensions, stands to reason that the shortest distance from one point to another will be a closed figger. A sort of lopsided circle."

THAT stopped them cold for a moment. But Tomkins, the astronomer, wasn't through yet.

"Our observations, Hank, also indicate that in this universe, every other galaxy is running away from ours as fast as it can. Why is this?"

Cleaver repeated unbelievingly, "Runnin' away?"

"Yes. Our spectroscopes show a 'red shift' in the apparent motion of all stars. This proves that the universe is expanding—"

"Why, no!" said Hank. "Gosh, no!"

"No?"

"Why, you got it all backward," explained Horse-sense Hank. "What you're sayin' ain't reasonable. Truth of the matter is, the universe ain't expandin' at all. It's just a-standin' still. Reason things look thataway to us is because—we're contractin'!"

And that really *did* stop them! Even when Hank explained that the same effect would be visible to a man standing in the middle of the floor of a gigantic room while the walls receded, as would be visible to a man *shrinking* in the middle of a normal-sized room. They didn't get it, but they tried. They took it home to sleep on.

SO grew the fame of Horse-sense Hank. And while all this was going on, another thing was happening, too. Hank

was seeing Helen MacDowell, practically every night. And—well, if you've ever seen a supercharged carton of honey and dynamite like Helen, you know the inevitable results. Love, with a capital *boom!*

Old MacDowell had a fit—ee-eye-ee-eye-oh! But it did him no good. His mood was one of kill and boo, but Helen's was one of bill and coo. It got so every time I saw Hank and Helen together they looked a reproduction of the Laocoön* group.

And then the ripples in the path of true love began to straighten out. The Isaminder Research Fund heard about Hank and granted him a five thousand dollar fellowship, and Dr. MacDowell snorted,

"Preposterous! They must be crazy!"

Then the Lowell Observatory made him an honorary member for his great help in unveiling the mystery of white dwarf stars, and MacDowell said,

"What do you think of that?"

Then the Advisory Council of Midwestern U. went over our prexy's head and offered Hank the chair of General & Practical Sciences, and MacDowell, bug-eyed, told me hopefully,

"You know, Jim, the first time I saw that young man I said he'd go places!"

And when the Nobel Committee voted to Hank Cleaver the annual awards for outstanding work in the fields of physics, astronomy and psychology, MacDowell capitulated completely. He rubbed his hands together, beamed like an April morning, and said,

"God bless you, my children! Would you like block letters or script on the announcements? Anything at all to please your little hearts!"

So it was arranged. A big church wedding for Helen and Hank, and of course I was to be best man. And Hank should have been the happiest guy alive. But was he? No. As the days narrowed toward the fateful one, he began to grow moody and thoughtful. Several times I caught him sitting by himself, pondering and shaking his head. Once I heard him mutter in a low undertone,

"Mebbe it wouldn't exactly work like that—"

He was puzzling out some deep problem. Just what, I didn't know. I was too busy to quiz him about it. And then came the day when wedding bells were to peal.

I WENT to the church to see that everything was in apple-pie order. I left Hank wandering in a sort of daze, impressed on him the necessity of being there at eleven sharp, told him to take a drink and stop looking like Sydney Carton, and wondered if he'd stop the ceremony to tell the preacher his words were unreasonable.

Time zipped by. The guests began to arrive. The organist came in and started practicing. The preacher came. Helen arrived, surrounded by a bevy of chattering bridesmaids. But no Hank. I called the apartment; the phone continued to laugh at me. Dr. MacDowell came back to the vestry room and pouted,

"Where is he, Jim? It's getting near eleven."

"He must be on his way," I said hopefully.

But eleven came—and still no Hank. And then it was eleven-fifteen, and eleven-thirty, and people were beginning to cough and get restless. One of the bridesmaids got hysterical. Helen

*Laocoön (lay-ock-o-on) was a priest of Apollo who warned the Trojans against the wooden horse of the Greeks. As a result he and his two sons were destroyed by serpents sent by Athene, who'd placed her bet on Greece. This mythological tragedy is portrayed in a magnificent statue now in the Vatican at Rome.—Ed.

shot Emily Post to the four winds and came to me in the vestry room almost in tears.

"Jim," she pleaded, "he's not here! He must have been hurt or something. Can't you find out?"

"I'll try," I told her. She left, and her old man came in. He was upset, and I don't mean he had a hangover. His eyes bulged like bumps on a cucumber.

"Blakeson," he bellowed, "where's Cleaver?"

"Do I look like a crystal ball?" I snarled. "Sit tight and amuse the crowd with card tricks. I'm going out to find him." And I went . . . but somehow I had a feeling that it was a futile gesture.

I HOPE the card tricks were good. They had to be to hold that crowd, because it took me three days to find my friend Hank. And I finally located him in—you've guessed it!—the south forty of his farm near Westville. Hank had reverted to the soil. Once again he was clad in coveralls and bulldog shoes. He had turned his back on civilization as a snake discards last year's skin, and the mouth that had once taught pedagogues was again clogged to the incisors with cut plug.

He saw me coming across the field, rose and dusted his knees, and shook his head dolefully.

"Nope, Jim," he said, "it ain't no use askin'. I ain't a-goin' back!"

"Man," I told him, "you're crazy! Don't you know the whole University's in a fever because you skipped out? Why did you go? Helen's all busted up. Don't you love her?"

He made a vain, twisting gesture with his hands. His eyes were bleak.

"Yup, Jim," he said.

"Then for goodness' sakes, why did you do it?"

He gulped wretchedly. "I—I can't marry her, Jim. I just can't. That's all there is to it."

"Why?" I was sore now. "For Satan's sake, why? Something like this deserves an explanation."

"On account," he said, "on account of it wouldn't work."

"It wouldn't—" I stared at him. "Come clean!"

He said, "I figgered it all out, an' it won't work. Say I married her, Awright. Purty soon, stands to reason, we'd have a youngster. A boy, I figger. Some more years'd pass, he'd grow up. Fust thing you know, he'd be a man hisself, an' he'd up an' fall in love with a girl.

"An' it just natcherally stands to reason that him bein' the kind of boy he'd be, an' me bein' the kind of man I am, we'd be sure to have a big ruckus, because—"

I STARED at him. "Because?"

" 'Cause the kind of girl he'd fall for," said Hank, "would be some durn chorus girl. An' "—Hank's voice was heavy with parental firmness—"they ain't no son of mine is gonna marry no chorus girl!"

I felt like yesterday's lettuce. I said faintly,

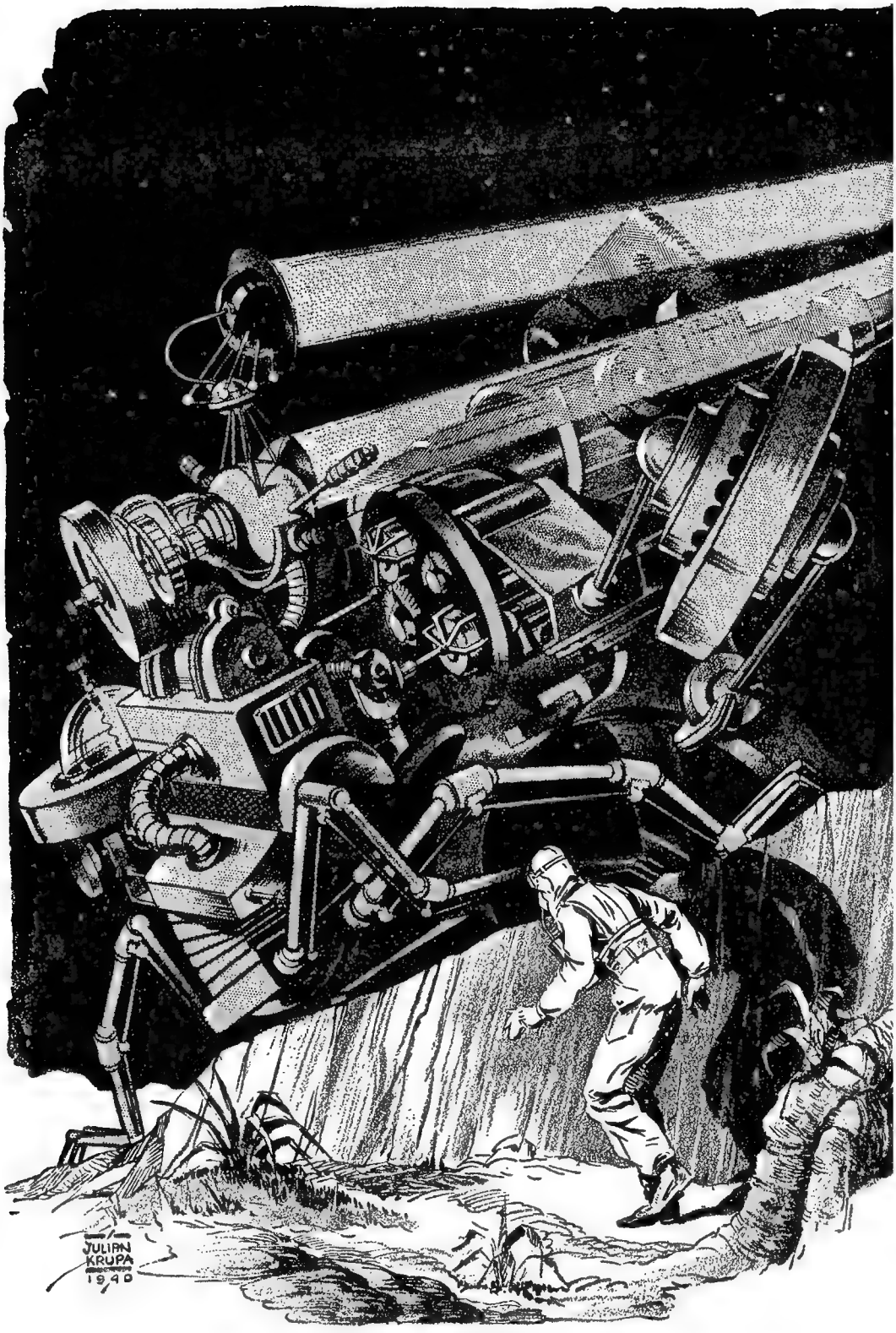
"But—but that's ridiculous, Hank. You can't know—"

"I do know, Jim. Afore I met Helen, I never worried none about the future, let every day take care of itself. But when we planned on gettin' hitched, I started figgerin' out the logical results, the results that *had* to be, by natcheral cause an' effect—"

He shrugged. "An' that's the answer. So it's better to never start the chain that'd make us all unhappy."

He held out a bronzed paw. "It's been nice knowin' you, Jim. You come

(Concluded on page 137)



Wilcox slipped stealthily past the great robot gun

TERROR out of the Past

By Raymond Z. Gallun

Perry Wilcox descends into the earth to solve the secret of an incredibly ancient civilization

"ROD!" Perry Wilcox shouted above the sound of bracewires singing in the slipstream: "In the name of Mathuselah! Look! there!"

Doctor Roderick Murgatroyd's shrewd old eyes probed swiftly along the line of Perry's pointing arm. For a moment he couldn't get it at all—couldn't see what hundreds of airmen, flying over this place during the past three or four decades, had missed entirely. But then, as Perry circled the plane around in a steep bank, it came over the old adventurer-scientist gradually.

There was a humping configuration of those hills down there—faint in outline as an old footprint in a rainwashed garden. It couldn't have been noticed from the ground in a million years, and even from this altitude it was as vague in outline as the memory of a dream.

The hills below looked like a gigantic Indian Mound, a mile in extent, and perfectly though dimly triangular. Regularly placed along its straight sides, were humps—foggy nodules—suggesting somehow the ruins of massive turrets, lying buried beneath layer on layer of repeated glacial silt.

Rod Murgatroyd began to cuss, half to relieve his feelings and half as though to drive away the possibility that he and Perry were mistaken.

"By the nine gods!" he roared back through the propstream. "It's a fortress, Perry! You can almost see the

battlements! But who in the name of the Cyclops could have built it? And when? And what in heck are we gonna do about it, Perry? . . ." Murgatroyd's voice was almost a whine of eagerness at the end.

Perry Wilcox was grinning broadly. "Do?" he returned, knowing that Rod had already passed the obvious answer and was planning far ahead. "What are you asking me that for? It ain't much of a riddle, is it?" He swung the plane into the wind, and began the glide toward Schroeder's hayfield.

Forty-eight hours afterwards, behind a high board fence, erected for secrecy —that is, as much secrecy as they could hope to achieve in surroundings that knew them well—the small crew they had assembled was busy. A heavy diesel motor pounded steadily, driving a rotary drill that was digging deep into the side of a low knoll.

For weeks the work went on. Five separate shafts were sunk into the ground, the first four of them reaching down to the solid stratum of fire rock, below the lowest and oldest fossil levels. From the depths of those first four shafts the drill brought up pieces of stone, some of which had angular corners, like carven blocks. And there were great lumps of rust too, that might have been reenforcing bars of steel. Thus the mystery deepened, taking on qualities of nervous unrest and expectancy.

And then, far down in the fifth shaft, the spinning diamond points of the drill snarled into a new medium. An hour later, in the summer dusk, Roderick Murgatroyd stood shifting a few ounces of muck, brought up from the excavation, back and forth between his palms. Most of it was grey volcanic stuff, but mingled with it were long shreds of metal, scored out by the drillpoints. The metal was as soft and pliable as lead, but it possessed a very considerable tensile strength. Tests had already proved that it was lead, alloyed with certain rare-earth elements, probably to increase its toughness, and to render it immune to the ravages of time.

"It's true, Perry," Murgatroyd said very quietly to the younger man beside him. "Truer than we could have quite understood before. Metal down there shows that. A carefully prepared alloy, such as only a very well developed metallurgical science could have produced. A layer, or a shell. Or maybe just a block. We don't know yet.

"Yes, we're on the right trail, Perry, even if it does look like a wild trail! Only yesterday the drill brought up fossils of an *undisturbed* stratum belonging to the Jurassic Period, the Age of Reptiles many millions of years ago! That means, Perry—" and the old Scotch-American's voice was still more vibrant and tense—"that means that this lead alloy was made and put into place before—long before—the time of the dinosaurs. In fact, if we are to judge from the stratum immediately surrounding the metal, it is contemporary with the Carboniferous Era or Coal Period. That's the point, Perry. There weren't any men on this planet at that time. And there weren't going to be any men for ages and ages. At least not Earth men. . . ."

Perry Wilcox nodded, controlling his own taut nerves. They were right at the edge of a staggering discovery, he was sure. It might break any minute, now, or any hour. The drill machinery still vibrated, boring into that mass of metal deep in the ground. The pumps, sucking seepage water out of the excavation, still throbbed. The two men's ears were tuned to the sound of the machinery. Any shift or change in the regular beat of the drill would have a story to tell. Thus they waited, as

night began to fall, slowly but surely.

THEY hadn't heard the soft purr of an expensive automobile on the roadway beyond the fence, at the foot of the slope. But now the sounds of a brief, angry argument at the gate, some hundred yards away, drew their startled, nervous attention. With so much that was unknown and unhintable pending, this was hardly the time to receive visitors of any kind, certainly not hostile visitors with ideas of their own.

Uneasily, Wilcox and Murgatroyd turned to face a group of people hurrying toward them across the intervening area of the fenced enclosure. One was a trusted workman, left to guard the gate. But the others—there were four men and a girl—had been able to overrule the guard's refusal to admit them.

Of the four men, three were burly, massive specimens with the scars of many combats marking their coarse features. The fourth was slender and bent, maybe fifty. His head was entirely bald, his cheeks had withered lines in them, and his squinted piggish eyes held a look of secretive, hungry searching.

Murgatroyd and Wilcox had no trouble recognizing this uninvited guest, who clearly was the master mind of the intruding group. All the world knew Lyman Kerwin, whose colossal fortune had thrust dominance-seeking tentacles into most of the key industries of America. Path of Progress, Rod's and Perry's outfit, had tangled with him once. They'd taken newsreel pictures of the collapse of one of the gigantic but poorly constructed power and irrigation dams which he had built in one of the western states. Hundreds of people had been killed, and thousands had been rendered homeless by a disaster traceable to materials and workmanship far less costly than specified. Only Kerwin's money, fixing a corrupt court, had enabled him to escape the consequences of criminal misrepresentation.

Seeing Kerwin, and the inquiring speculative glances he cast about the enclosure, Doctor Murgatroyd's pointed red face suddenly darkened with fury, chagrin, and something like a nameless, nervous panic.

"Thunder of Jupiter!" he whispered hoarsely. "That polecat would have to barge in now—now, of all times! We might have known it, Perry! But you just wait till I sail into him! The dirty—"

Perry silenced the old scientist with a poke in the ribs. "You keep still," he ordered. "Just make believe you're bossing the drill crew."

THE young man advanced slowly a few steps toward the intruders. He didn't grin or scowl. He just kept his face straight, ready to meet Kerwin in whatever manner the latter might ask for by his actions or words. Perry did notice the girl in the party, though—briefly. She was walking beside Kerwin. Chestnut curls peeped from beneath an odd little hat. There was a sprinkling of freckles across her tanned, earnest face. Perry knew her slightly. She was Lyssa Arthurs, better known as Troubles, reporter for a paper in the neighboring town of Brenton. Cute, plucky kid, but she seemed a little self-conscious now. And evidently she had strange tastes in company. Perry dismissed her presence iwth a curt nod that could hardly have been called a greeting.

When he spoke, Kerwin didn't allow a lot of room for doubt as to his attitude, in spite of the veiled terms he used.

"Hello, Wilcox!" he hailed volubly in a rich voice that was in sharp contrast with his cadaverous appearance.

"I thought I'd call, since you and the Professor are always doing such interesting things. What's up? Boring for oil or something?"

Perry kept silent, waiting for Kerwin to talk a little more.

"You might as well answer my question, Wilcox," the financier urged. "I'll find out anyway, you know."

"Maybe they're diggin' a road down to China, Chief," one of Kerwin's bodyguards offered with dry and slightly sinister humor. "Or a nice, deep hole to bury themselves in."

Before Perry could speak there was an interruption. The sound of the drill nearby, busy in the dusk, changed abruptly. There was a grating, hollow noise from far underground. Then the whine of machinery racing without resistance. Out of the pipe which ejected the muck and chipped stone and metal shreds brought up from the drilling, there came a gurgling puff, as of air trapped in a subterranean cavern, and under slightly higher pressure than that of the surface, being suddenly released from confinement.

Workmen leaped to throw out the clutch of the big diesel. Old Rod Murgatroyd began to swear excitedly, for it was clear what had happened. The drill had broken through the metal at last. It had reached a hollow space down there. A room, a chamber, perhaps, which the shell of lead alloy was meant to protect.

Perry Wilcox felt his pulses racing wildly. The presence of Kerwin could not spoil his sense of victory. In the evening air around him there was suddenly a faint, musty odor, like that of an old cellar, but with a distinctive quality all its own.

Perry saw the workmen step back from the machinery, as if they didn't know quite what to do or say. And he could tell, too, that the sudden cessation of movement, and that noisome smell, indescribably suggestive of a time that was dead for incredible eons, had had its effect on Lyman Kerwin. Kerwin's lips dangled loosely, and his eyes had lost a lot of their squint. His face was sweaty, and paler than usual.

"You asked what was up, Kerwin," Perry growled at last. "Well, so far we've tried to keep our work here dark so we could get the first investigations completed without interference. But I guess there's no use to stall. You said you'd find out anyway, and you're right —whatever good that'll do you. I think everybody'll get the story in a few days, or even hours. I suppose somebody tipped you off about what we were doing—somebody who lives around here." Perry grinned crookedly at the girl, Lyssa Arthurs, as he made this half accusation.

"But it doesn't matter," he went on. "You saw what just happened, Kerwin. We've evidently reached something with the drill. I don't know what—yet. But it's terribly old, Kerwin. And get this—there's metal down there—a perfectly balanced alloy as old as the Carboniferous fossils! Yes, it's pretty big, Kerwin! And liable to be—dangerous! Why, hell, even that cellar stench that came up from down there might actually be poisonous! It might contain microscopic spores that, in contact with human lungs, could grow and kill. Spores from the past, Kerwin. Sealed up and kept alive through the ages. Of course it's a thin possibility, but who can say? Do you still want to hang around, Kerwin?"

The latter's retreat was just a trifle too quick for good poise, and the sudden fury of his expression wasn't good form either.

"Rot, Wilcox!" he half stammered and half roared as he backed away. "You're talking rot!"

Perry could almost feel sorry for him at that moment. Full of hypochondriac fear, inspired by nothing but the slenderest of chances, Kerwin was trying to mask his cowardice by a show of scorn.

But Perry could feel sorrier for Lyssa Arthurs. Troubles, she was called. And she looked regular, all right . . . But why was she hanging around with Kerwin?

Now Kerwin made a nervous, jerking sign to his henchmen.

"Come on, boys," he said. "We might as well leave these fools to their silly grubbing."

Even the three pug-uglies looked a bit sheepish at the hasty departure their boss led them into.

WORKMEN were grinning and chuckling as Perry turned about, and old Rod Murgatroyd's red face was alight with amusement and satisfaction.

"You sure told that ninny where to dump himself, pal," he complimented, his blue eyes seeming to twinkle even in the dusk.

Perry's answering smile was brief. He glanced toward the fence, from beyond which came the sounds of Kerwin's car speeding away along the concrete road.

"Only," Murgatroyd added, sobering, "I don't think we're through with our playmate yet, Perry. You've got him doubly sore at us now, for making him ridiculous. And he's not so scared that he won't do his damnedest to get even—if nothing else. And—glory but it would be tough to have him mixing in with something really colossal, wouldn't it? What we've got here could be good for all humanity—it could be neutral, or it could be bad. We don't know. But good or bad, depend on Kerwin to make it the latter, if he gets the chance!"

Perry shrugged ruefully. "Yeah," he said. "That means we've got to work quick, Rod. One of us has got to go down there into the bore on a cable—find out just what we're up against in that quarter. Then there'll still be time to see if we can get digging options on the surrounding country—if it turns out to be advisable. Kerwin can't very well beat us to that, anyway. Now who'll it be that goes down there first?"

Perry Wilcox drew a nickel from his pocket. He flipped it dexterously into the air, caught it and slapped it onto the back of his other hand.

"Buffalo!" old Rod called.

Perry raised his palm to reveal a shiny Indian head. "I win," he remarked, grinning.

CHAPTER II

Mystery Below Ground

LIGHTS were snapped on in the gathering darkness. Long lengths of drill-shaft were pulled out of the boring, whose dark maw hid the unknown.

Perry put on a coverall garment of rubberized silk. Over his face he fitted an oxygen mask, and to his shoulders he attached several oxygen bottles. The air blow, after so many countless ages of stagnation, would probably be unbreathable. And though Perry had meant merely to unnerve Kerwin when he had mentioned the possibility of some kind of contamination, one could not quite be sure. It was best to have one's body encased in a sealed garment.

When he had completed his preparations, there was even a small toolkit at his hip. Attached to an elbow there was a powerful electric lamp, fitted with a long cord by means of which it could draw power from the generator here on the surface. And there was a small phone incorporated into his headgear. With the phone, like a subsea diver, he

could maintain communication with Rod and the rest of the crew here above ground. And of course he had his motion picture camera—strapped across his chest.

With a stout steel cable fastened under his armpits, Perry clambered over the edge of the boring, and was lowered below. The trip down—nearly three hundred feet—was uneventful. The stillness in the narrow shaft, scarcely wider than his shoulders, deepened with the depth of his descent. There was only the scraping of his kit against the rough walls, and the sleepy trickle of seepage water.

He reached the punctured metal barrier at last, and passed through it. Two feet thick, the shell was. A moment later his feet touched a solid floor, wet with the water that had dribbled down through the opening.

"I'm here, Rod," Perry called into the phone. "At the bottom."

It was a moment before the older man answered, and in this interval Perry heard disquieting sounds from the phones over his ears—sounds from the surface, which seemed so infinitely far away to him now. Automobile motors racing. Voices in much larger numbers than those of the small drill crew. And to Perry Wilcox came a conviction of pending trouble.

Then Murgatroyd spoke: "We've got company up here, Perry," he said, a note of anxiety in his tone. "A lot of curious people from Brenton. Sightseers rushing to a fire, so to speak. Kerwin couldn't think of anything dirtier to do to gum up the works for us, so he spread the news around that something was up out here. Naturally I've got a whole crowd on my hands. We're trying to keep 'em outside the fence. Of course they ought to be harmless enough, really; but damn it, I wish they'd go someplace else! What do you see down there?"

Perry had his electric lamp blazing at full now. On his chest, his camera, driven by a little spring motor, was turning. And he was staring about him intently, to grasp the character of his surroundings. He began to talk—to describe what he saw and felt.

"I'M in a passage, Rod," he said. "It slants down. Its alloy walls are all bent and crumpled. It must have been the movement of the ground through the ages that did that. Gosh, Rod, but you can feel the length of eternity here! It's written in these tunnel walls, Rod. The way they're bent and rebent. I can understand now why they were made of something tough and pliable, like this lead alloy. It's twisted everywhere, but unbroken. They—whoever built this place—must have known pretty well what they were doing—whatever their purpose was. . . ."

Perry advanced slowly down the slope of the tunnel, cautiously drawing his descent cable and his telephone and electric cords after him.

He reached a room of heroic dimensions, walled with the same grey alloy as the tunnel. The Stygian gloom that obscured it parted before the intense white path of his lamp.

There were tall metal boxes, like packing cases for heavy machinery, arranged in rows on the buckled and humped pavement of the chamber—metal boxes, each with a closed and perhaps hermetically sealed door. And near the farther wall was a machine—an engine or something—that displayed a gigantic, dusty flywheel. The walls, at a head-high level, were covered with something crystalline, like g l a s s; though where it had bent it had bent like metal—not shattering as a brittle substance would have done. Behind those crystal panes were compartments,

housing queer, complicated devices. They looked a little like astronomical or surveying instruments, Perry thought. Were they perhaps instruments for the navigation of interplanetary or interstellar space?

Seeing charts traced on the walls above the compartments that protected this array of apparatus—charts dotted with winking, diamond-bright bits of glass, which must represent scattered suns of the void—he was half sure that his guess was right. The charts were marked with countless interlocking lines and circles, which might be the geometric equivalent of latitude and longitude, applied not to the navigation of the ocean, but to the limitless, three-dimensional reaches of the cosmos.

This much Perry Wilcox was able to note, before his eager inspection was interrupted. In the heavy stillness there was a rustling whisper, which penetrated easily the thin, rubberized fabric of his hoodlike mask. The sound swiftly built itself up into a regular, soft rhythm. Perry spoke a few warning words about this development into his phone, and described briefly the room he was in. Meanwhile he stared ahead, ready in every taut nerve and muscle to leap out of danger, yet eager to see what it was that caused the disturbance.

His lamp beam focused on the engine near the opposite wall. Its flywheel was turning, maybe after half a billion years of motionless waiting in this sealed vault. But why? How?

Perry bounced back a step, icy fingers of dread tickling his flesh. "On your marks up there, Rod," he said tensely into his phone. "I can't tell what kind of a show it is I've started; but you may have to yank me up in a hurry!"

THE engine was whizzing now, ancient dust spraying from its flywheel. For a few seconds there were no more developments, except that Perry noticed the decorative frieze around the high, shadowy ceiling. Human faces carved in the metal. They smiled down on the young man mysteriously.

Then there was a soft clank in the far distance, muffled apparently by the turn of many passages, and echoed back and forth by crumpled, vaulted ceilings and walls. The sound might have been that of a door opening, or the rattling of chains. Perry was beginning to feel very much like beating a hasty retreat; but he waited a trifle longer.

There came, then, a ponderous, soft thudding, growing nearer. It wasn't till the impression of the sound clicked into a groove in his mind, establishing itself as identical with the regular thud-thud of great, running, elastic-shod feet, entirely inhuman in their note, that he concluded that discretion was the better part of valor.

He had farther to return than he realized. And his electric and telephone cords, his hoist cable, hampered him.

"Draw in the slack of my rig," he shouted into his phone. "And for Pete's sake, if you love me, set the hoist winch going when I tell you!"

He got beneath the bore that penetrated the tunnel roof okay. But the thudding was catching up on him fast. "Up!" he yelled. "Quick!"

It seemed a century before he felt the reassuring tug of the cable under his arms. He had a chance to look back once into the Stygian darkness that concealed a reawakening and incredible ancientness. There a little red light wavered and hurtled nearer.

Perry's feet left the metal pavement. He heard a hiss, like escaping steam, just as he was drawn up into the narrow bore. Something clanked and scraped beneath him, like claws raking

at his retreat. And the hissing continued.

He thought he could relax then, a little. But as he was pulled farther up the bore he felt heat burning through his rubberized silk coverall. It was just a harmless warmth at first, but it increased to a burning sensation about his legs. It made him dizzy and sick, and clouded his brain.

He heard Rod Murgatroyd yelling at him through the phone: "What's the matter, Perry? What's up?" And behind the voice of his friend there was the murmur of many other voices. The sightseers from Brenton. They didn't have any business being there; but if anything happened—if they got hurt—it was his and Rod's fault. Even though Kerwin, or someone under Kerwin's orders, had tipped them off for mere malice.

"Back!" Perry yelled. "Order everybody back!" When you pull me up, Rod, don't touch me without gloves! And breathe cautiously. Gas, I think. Some kind of corrosive gas. . . ."

THE rest, for a while, was like a bad dream to Wilcox. He became aware of stars overhead, and of wind. He was up in the open air once more. Nearby, Herkett, one of the drill crew, was swearing at the inquisitive onlookers, trying to send them on their way. Some were retreating. Others, held by a kind of fascination, still crowded forward against the fence, and met Herkett's blasphemous pleas with boos, or ignored them with a kind of self-conscious indifference.

Perry was sick with that intense, burning pain in his right leg. To keep his senses was a struggle. He heard noises from within the Earth—like ragged drumbeats that made the ground shake. Something unknown, crescendoing on to a preplanned purpose. Hands touched him—Rod's hands, covered with thick gloves. Car headlights flared all around in the night, mingling confusingly with the chaos of voices. Perry's rubber-silk outer garment was crumbling away from him like rotten rags. It had been eaten by a virulently active gaseous chemical, all right. Like combustion, the activity had evolved heat. He was still alive only because he was wearing an oxygen mask.

He tried to stand, clinging to Rod's shoulders; but the burnt leg, which might still put him in danger of death by an unknown chemical poison, would not bear his weight. He sank down to one knee while Rod tore the remnants of rotted rubber and cloth from his leg, and smeared an unguent on the ragged, blistered injury.

"I'll get him to a doctor," someone was saying from very close by. "You can't tell. That's apt to be very dangerous. A physician will know better what to do."

It wasn't till then that Perry saw who it was that was holding the first aid kit. Lyssa Arthurs, the girl who had been with Kerwin and his boys. But she'd come back, somehow. Looking up into the confusing medley of light and shadow, Perry saw her curly chestnut hair blowing in the wind. She looked a little bedraggled, and her lips were pursed very tight.

"Okay!" old Rod snapped, for this moment might involve the question of life and death for his friend, and there was no time to question the connections of this girl, who had been helpful. "Come on, you!" he added, grasping Perry's arm. "You're out of action for a while!"

Perry Wilcox was too dazed to think of all the reasons why he didn't want to be taken away from the scene of action now, and why he didn't want to go with anyone associated with Lyman Kerwin.

So his stubborn protests were mostly those of a hard man of action, clinging obstinately to the habit of wanting to be where things were happening.

"Can't leave, Rod!" he grumbled like a great obstinate, drunken child. "Everybody's in danger of—God knows what. Gotta stay with you, Rod. . . ." His words were muffled by his mask.

A moment Murgatroyd hesitated, then his balled fist shot out and caught Perry on the chin with stunning force.

What he'd seen of Troubles Arthurs in the last few seconds made the old scientist like her a lot. But since she was tied up with Kerwin someway, he couldn't trust her entirely with the custody of his pal. So he said:

"Thanks, kid. Otto, here, will go along to help."

Almost as an afterthough, Rod unsnapped the motion picture camera from Perry's chest. Its record of a mystery would be safer in his keeping.

OTTO, one of the drill crew, a great, blond bear of a man, picked Perry up and followed the girl through the throng to her car. In a moment it was speeding away toward Brenton.

But it hadn't gone far before the sounds of a fresh disturbance issued from the enclosure it had recently quitted. To the thudding from beneath the Earth, was added a droning note, faint but infinitely far-reaching. It was like the drone of a solitary electric generator in a deserted powerhouse at night. And there was a puffing noise from the direction of the enclosure. Voices waxed to screams. First of plain terror; then some of them changed to yelps of agony.

The reviving Perry half rose in the back seat of the speeding car. Then Otto, with all the good intentions in the world followed Murgatroyd's original example, hit Perry on the chin, and told the frightened girl up ahead to drive faster.

Meanwhile, safe in a hotel room in Brenton, a man sat at a writing table and waited. Lyman Kerwin had just received a phone call. One couldn't tell, yet, what was happening. But Kerwin's mind was quick and cold and ruthless. And somewhere in all this he saw a lot to his advantage—if he played his cards right.

CHAPTER III

A War Against Machines

IT was many hours later before the doctors at the Brenton hospital knew that Wilcox was out of danger. The gas that had burnt him was a little like mustard gas in its action, though more virulent; and it had narcotic properties that could function through a burn. With the danger from poison past, the injury was small.

But it was still more hours before Wilcox came out of the daze that had slipped over him. The immediate cause of his awakening from heavy slumber, was the roar of a squadron of airplanes, passing over the hospital roof.

He sat up dizzily. In the distance he could hear a muted mutter and clank. Then a series of heavy explosions. He looked about, noticing only subconsciously that he was in a hospital ward. His gaze settled immediately on the nearest window. Weakly he climbed out of bed and limped and staggered toward it.

The view extended for miles to the north, across the little city, and across the hills and woods and fields beyond. Everything he could see had the look of a place in close proximity to the no-man's-land of a great war. Lorries, loaded with troops, were moving in the streets. Tanks roared. Supply trucks,

most of them pulling guns, moved in a ragged stream.

Perry's face went haggard and drawn as he looked for the airplanes he had heard. Far up, he saw three. Huge bombers in the clear air. Clusters of black specks trailed down from them—bombs released from the racks. And in the hills beneath there were geysers of flying earth, followed by dull concussions.

Then unseen, hurtling vengeance touched each of the planes in succession. From somewhere in the sylvan terrain beneath, there were three faint pops. A second later, one of the bombers dissolved into a silvery cloud—duralumin and steel. It was the same with the other two planes. They fell apart as though all the cohesive force of the metals from which they were made was suddenly disrupted. The men aboard them hadn't a chance.

Perry Wilcox gulped painfully as his eyes searched the wooded hills, trying to orient things so that he could tell just where Murgatroyd's and his fenced enclosure had been. He couldn't see the fence. It was too far off and was hidden by the trees. But he did see a ragged line of peculiar upjutting earthworks. It appeared to follow the contour of the mounted mystery that he had first observed from the air. Shells from man-made c a n n o n splashed against it.

Just for a moment a gleaming colossus reared its hunched bulk behind the barrier. It glistened in the late afternoon sunshine as it seemed to take a look about; then like a lizard retreating into its hole, it slid back, from view. But behind it there were sounds like the working of great forges. Columns of smoke puffed up, dyed with the red of molten metal.

His attention was attracted to something else. Beyond the partly raised window, and across the street, he could hear a radio in one of the houses there. He bent forward tautly, straining his ears to listen. The voice was unpleasantly familiar:

"The latest newsflashes give us little hope. Our attacking forces are being beaten back, or destroyed. But we have great resources. We must be brave. The enemy is a strange one. We must amass more men, conscript money for war materials. Billions of dollars. That is our hope, our one chance. We must have a strong central government. That means the absolute leadership of one man. Obedience must be the key. My whole resources are at the disposal of the nation. We will triumph! We must! The Murgatroyd-Wilcox Horror will thus be destroyed. Be strong, friends. Be strong. That is all for now. . . ."

BEFORE the brief, artfully worded speech was half delivered, Perry Wilcox knew a good deal of what was spoken between its treacherous lines. The rich, semi-hysterical voice, seemingly overflowing with holy patriotism, had been unmistakable. Lyman Kerwin. But before Perry had time quite to digest this knowledge, someone called from behind him:

"Hey, fella, you're supposed to be in bed!"

Perry swung about, startled, forgetful of his injured leg. He confronted cool dark eyes with a quiet, half smiling challenge in them. It was Lyssa Arthurs again. Perry was glad to see her for a second, then he remembered.

"Well, what do you want?" he blurted sullenly.

"I've signed up for emergency work, and I was put in charge of this ward," she responded frankly, making a plain effort to avoid a painful clash of personalities.

But Wilcox was in no mood to take the hint. "Yeah?" he grunted. "Well, I seem to remember that it was you who brought me here to the hospital. For that, thanks! Otherwise, why don't you go hang around Kerwin some more? He's ambitious and capable! He can do things for an up and coming newspaper woman like you! Why I just heard him make the nicest, smuggest little speech you ever could imagine—over the radio. All about conscripting more money and men, and putting the country under the absolute control of one leader—himself, of course—to fight what he calls the Murgatroyd-Wilcox Horror. But I can see through him as though he was glass! He controls most of the munitions plants on the continent. The money'll go to him!

"But that's penny-pickings! He talks about absolute obedience. Sure! With himself as boss! Kerwin talks smooth. There's only one thing I can't understand about him. He's as yellow as a hyena. How he can find the nerve to talk fight now, is more than I can see!"

The girl regarded Perry coolly, after he had finished. "I'll be kinder than you've been to me, Mr. Wilcox," she said at last. "It's the privilege of all sincere science to explore the unknown. You and Mr. Murgatroyd did just that when you dug into those hills. You had no idea what would happen. But the result *is* your responsibility. As for my being with Kerwin—it's not your business, of course, but I may not have enjoyed that myself. It happens he owns most of the *Brenton Herald,* for which I work. He asked me to come along with him to visit the site of your excavations, and I couldn't very well refuse. It happens too, that I didn't tell him that you were digging there, in case you're accusing me of that. But there are plenty of sources from which he could have gotten information to arouse his curiosity. You are well known, and people are curious. But of course all this petty explanation of mine can't mean much now."

Perry bit his lip, feeling briefly sorry that he'd openly connected Lyssa Arthurs with the Kerwin outfit. But he was by no means ready to trust her either.

The rumble of shells, exploding miles off, beat into his mind. There was a mysterious hiss, followed by the screams of dying men. Perry winced. It was logical of course that soldiers should be sent to attack whatever it was out there; but he was sure that Kerwin must have some special knowledge about the enigma up his sleeve, or else he'd never have the guts to be delivering radio lectures that didn't say anything about running away.

"I don't know enough!" he groaned aloud. "I was put out of action too quick to see just what took place at the excavation. I can't judge—"

Suddenly he grasped the girl by the shoulders. "Where's Murgatroyd?" he grated. "Does anybody know?"

Troubles Arthurs stayed cool, in spite of his fury. "Why yes," she said. "He's here." She nodded toward a hospital bed against the wall.

PERRY staggered toward the inert form which lay there. Rod, his head swathed in bandages, was completely unrecognizable. His features were covered.

"Gas, same as hit me?" Wilcox asked the girl.

"No," she whispered. "Some kind of beam of concentrated heat waves. It's his eyes, mostly."

"How long was he out there?" Perry questioned. "What I mean is, how long did he stay in action before he got hurt?"

"About two hours, I think," the girl

responded. "He helped with the first civilian wounded, managing to stay clear of the gas himself. There was an explosion afterward. And out of the hole blown in the ground the machines —they're like strange robots—began to emerge. That was at ten o'clock the night before last. Mr. Murgatroyd was brought in at eleven o'clock, so he must have been active for half an hour after the explosion."

Perry had heard enough. He bent over the bed of his friend and touched his shoulder. "Hey, Rod!" he called. "Hey, this is Perry! Wake up, you old son-of-a-gun!" Perry's vision was misted.

Murgatroyd groaned and stirred. When he spoke, however, he seemed lucid, his mind clearing after the long siege of unconsciousness, caused by his head injury. "Hello, fella," he muttered, turning his face toward the sound of Perry's voice as though trying to peer through the bandages that covered his damaged eyes.

"Rod," the young man whispered. "I want you to concentrate—try to remember. We've got a big job that's our personal concern. But it's more than that. It's a danger concerning the whole country—m a y b e the whole world. Just what kind of an enemy is out there, Rod? Those robots. What are they? Is anybody controlling them? Or do they think for themselves? Do you know anything about them, Rod? Anything at all?"

The old Scotch-American's l i p s moved, almost hidden in the swathing of cloth. "I guess it should—be all right," he said at last. "I guess it's kind of—funny. Machines—think? Some might, but these—don't. They can do things—perfectly. Like a machine that rifles a gun barrel or predicts the tides. They're made that way. But these robots are just refined machines—acting almost human, sure! They'd almost fool you.

"They see, they hear—in a way. They come toward you, aiming and firing explosive slugs, or sending out beams of concentrated heat. But we stopped a few of those robots with shells. Just adding-machine stuff inside, Perry. Cams and rods and wires, like our inventors would build, only a lot more wonderful and complicated. No soul could be in that, Perry. No real consciousness. No ambition . . .

"Professor Vince had the wrecks hauled off—copped them for examination. I guess he knows a lot now, Perry. He tried to talk me into giving him your camera, with the pictures you took down in the bore, too, Perry. But I sent the camera to the rear with one of our men . . .

"As for the robots, they may be under some kind of centralized radio control, of course. But even that can't be—real brains. It hasn't the judgment. Any little trick, like stepping out of the path of an automaton chasing you, and staying perfectly still, fools 'em. They go right on past you. And you can pull the same stunt again and again. But they're still hellish."

Old Rod paused, panting with the effort of his long explanation. Then he went on: "So that means—there's nobody at the helm, Perry. The whole business just goes on by itself. And it *is* pretty awe inspiring and wonderful at that—so damned wonderful you'd want to cheer, if it wasn't so deadly—when a bunch of men makes an attack against it. The thing to do is not to attack, anyway for a few days. We'd learn more, then. Those robots are guardians of some kind, Perry. It's a hunch of mine. . . ."

Suddenly the old man half rose in the bed, as if the expressing of his own thoughts had startled him. "That's the

whole crazy irony of the situation, Perry!" he cried. "Men out there, dying—and on the other side—potential progress, inspiration, miracles! The key to a new era! We've got to do something—Perry—now!"

For a second Roderick Murgatroyd looked like a magnificent, blinded seer. Then he dropped back onto the bed, fainting into a coma of fatigue. Perry touched the old man's hand with a brief pressure of comradeship.

But at the same moment Wilcox was thinking fast to correlate his new information. Rod had spoken of Professor Vince. Vince, a shy, moon-faced little man, was a noted professor of physics at Kerwin University. Vince, then, was one of Lyman Kerwin's stooges. What Vince learned from examining the wrecked automatons, Kerwin would promptly find out. Perry was sure he understood the setup at last.

Kerwin knew, somehow, that what he called the Murgatroyd-Wilcox Horror was of little danger to himself, if he kept out of the battle zone! He was only using it as a means to his own ends. Power. Complete control of the nation. Free access to the inventions this marvelous archeological discovery might reveal!

It was all too clear.

INSTANTLY Perry's plan was formulated. His injury was really superficial, now that the effect of the poison was gone. Exertion would work the stiffness out of his leg. But he glanced in frustrated exasperation at the pajamas he was wearing. A second later he was tugging at the door of the closet in the corner of the ward.

"Doggone! Where's my rig?" he was grumbling, as he clawed at the piled contents of the closet—mostly clothing of the wounded that had not been damaged by corrosive gas or heat.

He found his oxygen mask and tanks at last. Quite indiscriminately he seized a shirt and a pair of trousers, and yanked them on over his pajamas. Shoes were similarly selected and donned. Then he hurried toward the door of the room.

Lyssa Arthurs barred his way here, her lips firm though smiling. Her dark eyes had a roguish glint that admired and challenged. She looked like a courageous small boy standing up for his rights, that way, Perry thought with a strange pang.

"I'm responsible for the patients in this ward," she said pertly. "Where do you think *you're* going, Mister?"

Perry shoved her unceremoniously aside. "Places," he grunted almost good-humoredly. "You said before that I had responsibilities."

He rushed down the hall. In thirty seconds he was out in the street, with the bustle of behind-the-lines activity around him. He dodged ahead of trucks and tanks on his way to the river.

Once, from a radio in a house he passed, he heard the rich, high voice of Lyman Kerwin, exhorting, commanding, praising himself in subtle terms, using fear as a means to power:

"All my resources are at the disposal of the nation to combat the Murgatroyd-Wilcox Horror. The response has been good to our appeal for money. But it must be better. Better! We are pitted against something incredible—something that possesses many unknown weapons. The women and children of America must be protected. . . ."

Perry Wilcox growled. And almost simultaneously a youth hurled a rock at him, shouting: "There he is! There's Wilcox, one of the two mugs who started all the trouble!"

A gang was after Perry then, pelting stones; and he knew that Kerwin's propaganda had already achieved a very considerable success.

But he didn't stop to argue. He just ran on, limping a little. He reached the powerhouse dam. There he paused briefly to don his oxygen mask and tanks. Then he leaped into the swirling water, and sank into its concealing depths. He didn't try really to swim. He made only a few strokes to keep himself righted, and safely beneath the surface. The current was swift, and it flowed in the proper direction. He had air to breathe. There was nothing much to do but wait.

Dusk began to settle. Perry heard guns on the banks of the stream, and shouts and cries, as he drifted invisible through the human battle lines. Presently, looking through the goggles of his air-tight oxygen mask, he saw light around him, then darkness, then light again. It was the regular play of a great searchbeam from up there on the hills. And there were noises too, now loud and near. At least he'd come this far without being detected.

Clinging to a rock of the river bottom, he waited a little till it got darker. Then, still being careful to keep well beneath the surface of the water, he swam toward the shore.

HE came up in the reeds at the river's edge, and peered cautiously toward the low bluffs. He had to duck his head again, before he saw anything but humping, moving shapes, and part of a great, half-restored battlement; for the search beam, swinging majestically and regularly back and forth, swept blindingly toward him.

But there were regular intervals between each successive blaze of light; and these allowed him to observe. Little, gleaming robots, walking like human beings on broad, elastic-shod feet, and provided with metal arms, were rebuilding the battlemented wall with limestone quarried from the hillside. They worked with perfect efficiency, raising blocks into place, and applying a kind of mortar with spatulate-ended arms. But their movements for each operation were always identical, betraying not intellect but standardized mechanical perfection.

And it was the same with the other machines and weapons. A gun—it didn't look so very different from a familiar artillery piece, except for its complex breech-loading mechanism, fired intermittently, without any crew to operate it. Watching, Perry concluded that its sighting and firing apparatus must be stimulated by certain sounds, movements, and lights, out there where the soldiers were entrenched. For when he heard a shout from the rear, or saw a cannon flash, or troops advancing from the trenches, there was always a volley of small, screaming shells, the latter directed with a precise, cold accuracy, that must depend on the spiritless exactness of instruments. And the result was massacre.

Heat beam projectors, lensed boxes in their webwork supports, seemed to operate under the same kinds of stimuli, turning their faint, barely visible spears of heatwaves toward sudden light, noise, or movement. Searchlights swept the sky, probably drawn by motor sounds. And if they located a plane, the movement of its light-enveloped form was enough to attract the high-angling muzzles of slender guns that fired with soft pops, but reduced duralumin to powder. The aiming was always perfect.

When the search beam was turned away from him, Perry got cautiously out of the water and dashed for the nearest bush. He crouched behind it,

as the beam swept past him like a great eye. Then higher, to another bush. And so he advanced. Once, because he stumbled, he was caught in the open; but he threw himself flat and waited, cursing his clumsiness. But the blazing glare passed him, and no blasting death followed. Perhaps camera eyes had photographed his inert form; but mechanical, adding-machine brains had not enough reasoning powers to recognize him as an interloper, as long as he did not move. Perry breathed with relief, and continued his intermittent climb at each brief moment of darkness.

Near the top, however, it didn't look so simple. He was hiding in a clump of tall weeds, face to face with those guns—and nobody knew what other deadly devices. He was stumped as to how he should try to advance further. Make a rush? There was a pretty good chance of getting past the guns that way, as far as he could tell by visual inspection; but surely there'd be something there, in the narrow gaps between the guns—something to kill him, or at least detect his presence! It made his flesh crawl; but need gave his wits a sharper edge. He had to get through, somehow!

He searched the line of fantastic, flame-spewing weapons avidly. A hundred yards away there was a small break in it, where an aerial bomb, dropped by one of the planes, had struck. The crater still smoked with the vapors of the explosive. If there was any detecting device there, any taut-stretched wire, or anything that would bring some death machine into play at his accidental touch, it would be shattered, now, and still unrepaired.

Scrambling from bush to bush during intervals of darkness, as before, he got to the break in the line, and through it safely. Thus, he looked at last over the hilltops, and down into the area enclosed by that great, mounded rectangle.

It was a queer, contrasting scene. Familiar farm buildings stood out in the weird illumination. But everywhere there were mounds of earth and deep pits. From some of the latter, red-lit smoke trailed up toward the stars. Massive things, not unlike army tanks, moved in circles, as if pacing beats, and there was the muffled clang of what could be buried factories. The old fortress had come to life once more, resurrecting itself from its bed of Carboniferous slumber. It was a camp, bristling with strange armaments and bustling with activity.

CHAPTER IV

Into the Robot's Lair

PERRY lay prone in the high grass. He was panting and tired, and he felt a little sick again. He knew that whatever chances he had of accomplishing any good here, would be diminished if he waited. There were dozens of ways of getting uselessly killed. So far he hadn't encountered any of that corrosive gas, but hisses, and distant human screams from the flats along the river, told him that it was being used. And though he had his oxygen mask, his clothing and skin could be eaten away and his blood poisoned. Two bombers burst overhead, their powdered wreckage silvery in paths of searchlights. Perry knew he might even be destroyed by the weapons of his own countrymen.

So his gaze settled feverishly on the nearest opening in the ground. It wasn't far away, and its depths were lost in darkness. But twice he saw crawling mechanical things emerge from it. It must lead, then, toward the heart of the mystery he was trying to probe.

At the next opportunity, he made a

dash for the pit. He lost his balance in the loose soil at its edge, and tumbled to its bottom. But except for a few scratches, he was unhurt. He picked himself up and hurried down a steep passage. Except for lights far ahead, it was dark as Erebus. But he advanced as rapidly as he could, his purpose only to explore, and to take advantage of opportunity, if it came.

Once he heard the growl of machinery, as a great crawling automaton came down the passage, moving in his direction. The headlamp threw him into full view. And there was no place to hide. But remembering what Rod Murgatroyd had told him about these automatons, and making use, too, of his own experience with them, Perry flung himself against the crumpled alloy wall and froze rigid as stone, his heart thumping madly.

The robot stopped. Its mechanical eyes must have seen his movement. Perhaps the delicate maze of wheels and cams and instruments, which was all it had for a brain, had responded to the stimulus of his moving form, and was forced, by the way it was planned and built, to wait and search for other evidence of a hostile presence. But finding none, the robot whirred on. As it passed Perry, he felt the heat of its driving mechanism. Through a quartz glazed spyhole in its flank, he saw a white, blazing globe within it—perhaps a mass of material throwing off atomic energy.

Perry's lips, sweat-daubed behind his mask, curved in a haggard smile at his oddly miraculous escape. He continued on his way.

He had an odd, tense idea of being followed by something that was not quite mechanical. Behind him, in the darkness, and even above the confined din of the factories, he thought he heard, now and then, the patter and slither of footsteps.

And so he hurried on, along the main tunnel, reaching at last a faintly lighted, circular compartment.

In the center of the room a vat, a hundred and fifty feet across, was sunk into the floor. Its cone-shaped interior was full of a greenish liquid, and was covered over by an immense sealing disk of glass. There were grids, like colossal battery plates, in the liquid. Bus-bars, penetrating beneath the sealed edges of the glass disk, attached the grids to an apparatus standing at the vat's circular rim. The apparatus resembled an electrical transformer.

Just for a moment Perry was able to look. Then the light in the chamber began to fade.

There came a rattle of opening doors as the light died completely. He tried to hold perfectly still, as he heard the soft, heavy footfalls of great robot-guardians released. He should be able to fool them too, by keeping perfectly quiet.

Now, again, he heard those lighter footfalls, that had seemed to be following him. They advanced to the entrance of the chamber. Instantly there was an answering rush of elastic-shod feet. And then a woman's scream!

Perry was petrified for a moment of utter consternation. Then he rushed toward the sound of the scuffle there in the weird dark. The slithering of his own feet betrayed him. There was a clanking rush in the gloom. Cold metal claws closed firmly about his shoulders. He struggled. The oxygen mask was scraped from his face. But the gripping members held him firm at last, and he desisted in his futile efforts to escape.

"Who's there?" he growled, panting.

"It's me—Troubles," came the answer, half sobbing.

Perry Wilcox was stunned. "How

did *you* get here?"

"Same way you did," the girl choked. "When you ran away from the hospital, I sent an orderly to follow you, and bring you back. He didn't get to you; but he saw you dive off the dam with the oxygen mask on. When he told me, I guessed right away what you were trying to do. So—I got leave, found myself a mask in the operating room, and —tagged after you."

"In the name of sense, *what for?*" Perry demanded.

"For a lot of good reasons—Mister!" she said more decisively. "I used to be an ambitious newspaper woman, for one thing—always hunting up trouble and hoping for a scoop. You can believe it's that way, if you want to. Or you can believe that I'm the little girl that used to keep clippings of all the Wilcox-Murgatroyd exploits, and that you're still my hero—if you're conceited and crazy enough. I don't care!"

It was a torrent of words that would have startled Perry Wilcox if he wasn't so amazed already, here in this dark hole of a place, with metal monsters clutching him.

"Okay—Troubles," he stammered.

The robots restraining him were motionless. Nearby there were hollow clankings. Trying to catch the significance of the sounds, Perry was sure that the cover of the great vat was being raised. Cold prickles raced over his body. What was it that would happen now?

Lyssa Arthurs was talking again, out of the dark. "Perry," she said more gently, though just as intensely as before. "Just when I started out it came over the radio that Kerwin was appointed Provisional Director of Defense. And—and there's danger that the hospital will be stormed by a mob —to get Murgatroyd."

Before he could answer, Perry felt his feet hoisted from the floor. He was swung in metal arms, then tossed free. He flew through the air. Warm fluid closed about him. It was like water, only it stung his flesh—made his nerve-ends numb.

He heard the girl give a startled, involuntary cry, as she too splashed into the strangely energized fluid in the great vat. Automatically he tried to swim toward her; but the numbness was quickly creeping over his nerves and muscles. He could hardly move.

His voice was hoarse with half paralysis when he choked: "Keep your courage, Troubles . . ."

Perry's head went beneath the fluid. His brain was spinning. He thought he heard a click of switches being turned on. The numbness increased suddenly, like a jolt of electricity. But he managed to hold his breath. He had a curious sensation of shrinking, of being pressed together.

HE emerged at last from unconsciousness, knowing at least that he was alive. He was coughing, as though his lungs had been partly full of fluid. His head ached intolerably, and his heart was laboring like a rusty engine.

He sat up on the wet surface on which he sprawled, and tried to look about. His vision was blurred at first, and he squinted to focus his eyes. He looked around a square room, one end of which was open. Its walls were like rough, black glass. Behind him was a dark opening, like a door, from which, judging from the wetness around him, he had recently been ejected, along with a considerable quantity of fluid.

He saw the girl, Lyssa Arthurs, sprawled beside him. Worriedly, Perry scrambled over to her. She was still unconscious, though breathing raggedly. Her rubber oxygen mask was

intact, except for the metal and glass parts, which were curiously pitted and malformed. By some unknown transformation the oxygen tanks strapped to her shoulders, were similarly distorted and useless. They were full of holes, and had lost their compressed content. Perry had parted with his mask during his scuffle with the robots, and now his tanks had broken loose from his shoulders somewhere too. He noticed that even the metal buttons of his shirt were rough and out of shape.

He ripped the useless, ill-fitting mask from Troubles' face, unfastened the crooked buckles that held the oxygen flasks in place, and applied artificial respiration.

Meanwhile he searched his surroundings. What had been done to Troubles and himself, and where had they been taken? He looked again toward the open end of the compartment. Beyond was a gigantic, beautiful cavern, apparently many miles in extent. It was walled with coarse, jagged glass. Through a system of lenses in its azure roof, light was streaming down. It must be artificial, but it was just about like reddish sunlight. The floor of the cavern was like a beautiful, wild valley, crowded with strange, exotic trees and plants; and white buildings peeped through the foliage.

What had happened looked almost simple to Perry Wilcox then. He and Troubles had merely passed down through the vat, to a vast, habitable, artificially excavated cavern below. But he couldn't accept this idea, somehow. It was *too* simple. And there was an elusive strangeness, disquieting and hard to identify, about everything he saw and felt. It was more than just the oddity of the vegetation and the buildings.

After a minute, Lyssa Arthurs sighed and tried to rise. She looked about, confusedly. "Where are we?" she demanded.

"Your guess is as good as mine, Troubles," Perry returned, awedly. "But we must be at the final center of things—at the place the robots up there were meant to guard. Whatever that may be."

They rested several minutes, not saying much. Then Troubles arose shakily. "Come on. Let's explore, fella," she urged.

Perry supported her unsteady steps as they walked out of the open-ended chamber. The ground around them was covered with a kind of coarse, shaggy moss. Trees, formed like oversized bushes, reared up over them, bearing strange fruits. The light which came from above, was warm, like sunshine.

"Kind of like a heaven here, isn't it?" the girl asked.

Perry grinned, though his head still ached. "What are you trying to do, pull my leg?—talking that kind of bunk!" he growled.

"Only it's so still and deserted-looking," Lyssa went on. "There's not a path anywhere. And look! That building!"

They had passed through a grove. Near them was a long structure of white stone. But it was like a ruin. Its rows of windows, with their carved decorations, some of them human figures, were sightless and empty, except for intruding masses of coarse, vinelike plants. Once, from its appearance, the building might have been a gigantic apartment house, teeming with inhabitants. And there were others like it, near, and far off on the high slopes of the cavern. But all had that same tenantless aspect.

PERRY and Troubles were moving along a street of what might have been a village At the farther end of the street was a domed edifice of glass of

different colors.

And at the crest of the dome, standing firmly on a stubby cylinder which was evidently meant to represent some sort of ship, was the golden figure of a man, clad in flowing robes. The face of the colossus was stern and kindly as he stared off into the distance as if somewhere there he watched for the realization of a hope. The great staff he clutched, rested on his pedestal and rose straight upward to join with the roof of the cavern, above.

There was a steep stairway leading down to the sunken grounds of the domed edifice. Lyssa, hurrying ahead on still unsteady legs, and looking up too intently at the golden image above, lost her balance and pitched forward on the steep slant. She tumbled the full length of it. Perry gave a shout of concern and leaped after her, sure that she must have at least broken some bones.

But she got up quite nimbly and promptly. "Stumble bum!" she muttered, frowning. And then in a new and different kind of tone: "Perry—that was funny, wasn't it? I'm not hurt at all!" There was wonder in her dark eyes.

He was puffing with relief, but was startled, too. "Yeah, I see!" he said. "It's stranger than the desertion, here. I landed light myself. It was as though the air was holding me back—partly. As though it has a higher resistance, or something! But that's looney!"

They walked into the temple. The atmosphere there was cool and moist. Glass pillars, spiral in form, loomed in the shadows. Lyssa and Perry looked around intently, as if searching for the answer to a riddle.

In an indented portion of the blue grass floor, there was a cluster of spherical globes, crystal clear. They were maybe three inches in diameter.

Idly, yet with an odd and very significant thought lurking in the back of her mind, Lyssa kicked at one of the globes with her rough shoe. Immediately it broke, coalescing liquidly with several of its neighbors to form a slightly flattened ovoid. It was like a huge drop of quicksilver in shape.

Lyssa was thinking deeply, but then Perry got her off the track. "Look, Troubles!" he shouted. "The air resistance really is higher here!"

She turned her eyes toward where he pointed. Light shafted into the room through the high, arching entrance. Surrounding semi-darkness brought out the phenomenon plainly. Motes were floating in the path of the light. And long, fibrous things, like lint. Only the motes were as large as grains of sand, and the crooked strings of lint were as thick as lead pencils!

"The air resistance would have to be higher, or the rate of its molecular motion and bombardment would have to be a lot swifter than usual, to support such big particles," said Perry. "But how can that be? It seems the same old familiar air!" He halted, a startled scowl crinkling his sunbleached eyebrows. "Say!" he drawled at last, mounting incredulity in his tone. "Say! . . ."

SENSING that he was at the last barrier of the riddle that had begun with his discovery of the great triangular outline in Minnesota hills, he studied the glass walls around him. In the depths of their colored substance, he could see large bubbles, and flaws of exaggerated size. Then his gaze fell on the liquid, globular things that Troubles had kicked. They looked exactly as though it was ordinary water that composed them—as though they were dewdrops—except for their huge dimensions.

"That's the funny thing we noticed,

but couldn't quite place," Lyssa offered. "That dew. That dust in the air. The flaws in glass. Such stuff is all bigger than it should be, Perry. But what does that mean?"

Perry was thinking as fast and as hard as he could, then, trying to put together all the puzzling pieces of his recent experience. Most significant was the odd, tightening, *shrinking* sensation, he had felt, after the automatons had tossed him into the vat of liquid.

"Troubles," he said very slowly. "I —think—I've—got—it! *We've—been reduced—in—size!* We're Lilliputians, maybe an inch high, now! This cavern isn't the huge thing it seems to us. Comparatively, it's a toy cavern. The buildings are toy buildings; though they naturally seem gigantic to us, because we're so small too. But dew and dust, relying on universal physical laws of nature, remain normally—big!"

"But, Perry," she asked in the same awed tone he had used. "Is that possible—that we've been shrunken, and still remain alive afterward?"

"Why not?" he questioned in response. "Everything is practically the same—really—just s c a l e d down.* Every cell in our bodies must have been correspondingly shrunken, of course, so that there are as many cells now as in the beginning. Otherwise we wouldn't be—ourselves. If there weren't somewhere near the normal number of grey cells in our brains, for instance, we'd lose our reasoning powers.

"We were thrown into the vat. Energy worked on us, drawing substance away from each living cell—fat, protein, sugar, water—and the cell-walls shrank, and we shrank with them. Our excess body substance was perhaps absorbed by the green fluid, maybe being preserved for a reversal of the process —a return to normal size. Only judging from what happened to our metal buttons and things, the trick doesn't work out very well for inorganic substances."

Perry halted, recalling something significant. "Remember how you fell down those stairs up there, without being hurt at all, Troubles?" he questioned. "That you weren't hurt is part of the relativity of being small. Take a mouse and drop him from a high place, and his injury doesn't amount to much. Drop a man from the same height, and he gets all smashed up."*

Lyssa Arthurs seemed to muse for a moment. "Yes," she said. "I see . . . Whoever built the fortress must have built this miniature cavern before they reduced their size, since this building is constructed all in one piece, and not of blocks cemented together. And you wouldn't expect little people to do that very readily. Then they came down through the vat apparatus. But why,

* Judging from the vat in which Perry and Troubles were reduced, the apparatus attached to it, and the sensations of being in that green fluid, it would seem that the process of reduction is partly electrical. Perhaps similar to electroplating —the drawing away of substance from one electrode, and its transfer, in the form of ions, to the opposite electrode. Each cell in Perry's and Troubles' bodies, and in their clothing, could have been reduced that way. This isn't so startling when reduced to prime factors. The human body is simply chemicals. So are clothes. And life may be electrical in itself.—Ed.

* For a given shape and density of material, the smaller an object the higher the proportionate resistance it offers to the air. This is because, in relation to its bulk, a small object has a greater surface area than a large one. Hence, relatively more friction. Thus, in air, a mouse might be expected to fall slightly slower than a man.

But this is not the most important reason why small objects are not as easily damaged by proportionate forces as large objects. Take the model of an ocean liner. It seems very firm and rigid. Build a full-size ship under the same specifications —same steel, same relative thicknesses and lengths. If it was possible to pick such a ship up from either end, it would be in danger of breaking in two under its own weight!

Small objects are relatively stronger. In order to make a full-size ship as strong as its model, the strength of the materials used would have to be increased in proportion.—Ed.

Perry? Why did they want to be small? What advantage was there in it? Who were they?"

OVERHEAD, in the arching dome, Perry Wilcox noticed a picture. An ocean washing a jagged shore. It looked just like a modern ocean. Only, in the gorges between the jagged volcanic bluffs, there were bizarre, fernlike trees, such as had existed in the Terrestrial Carboniferous Period.

"I think," he said, "these people came from another planet. That ship looks like a space ship."

"Do you really think so?"

"Yes, and it was a tough world for a raw bunch of colonists," Perry went on. "So it was probably easier for them to make a small world of their own. One they thought they could regulate and control. Only—there was something wrong with it. That's why they're extinct."

"I guess you're right, Perry," the girl offered. "They built the fortress. It was their first encampment, within which they could make their preparations. Then, when they were ready to become small, they covered it over to hide it. The automatons were sealed up, with special apparatus to make them active—if there was danger—if some snooper came around. For instance you, Perry. Our being sent down here, was part of the plan too—captives or guests. Only the little people who were supposed to receive us, have disappeared."

It was obviously true. The valley of the cavern looked deserted to its farthest, verdure-clad reaches. The buildings, peeping white through the green, were skeletally silent. There was no sound.

The desolation got on Perry Wilcox's nerves. The vast futility of the mechanical debacle going on above. A dream that had soured. A science of miracles that had followed a Will-o'-the-Wisp to a dead end. And then Perry thought of something that changed his mood.

"They must have had a way to control the robots from here, Troubles," he said. "Everything else is too perfectly arranged for it to be otherwise. They wouldn't just lock themselves down here, blind to the upper world, would they? There must be a control-room somewhere. And logically it should be in this building, since it's the most important-appearing one in the place."

CHAPTER IV

Nemesis from the Tiny

PERRY and Lyssa found what they were searching for at last, after climbing a long, spiral stairs. The chamber was round, and was above the dome of the temple, just beneath the representation of the space ship and the golden statue of that ancient leader. The disk-shaped door was fastened by a great hasp that was disengaged easily.

Wheels, meters, switches, charts. Never before had Perry Wilcox seen such a staggering array. His heart sank. Could he ever master such a complex arrangement in time to do any good—to stop the robots and that vast, senseless conflict above? He tugged at one wheel. It turned a very little, and a meter needle nearby jumped, showing that the apparatus was still effective. But there the wheel stuck. It was locked by a slight film of corrosion. Though things in this control room were marvelously preserved, considering their titanic age, they had not been protected by a time-defying vacuum.

Perry's face went sober and tired. "Even if these are the right controls," he said, "it would take me a week and

a lot of oil and brain work to loosen 'em up and figure 'em out so I could turn off hell up above."

Then his gaze centered on a mirror nearby. It was part of a periscope arrangement which evidently communicated with the surface, its upper end cleared of encumbering earth by the robots.

In the mirror was visible the slope of a hill, bright in after noon sunshine. A solid array of army tanks were creeping up it laboriously. Behind them, guns blazed. But down upon those attackers was pouring a hail of death—of sharper, more violent explosions—that wiped out two and three of the tanks at a time. Beyond, the plain was being filled with a miasmic fog of death—corrosive gas. Still, the tanks came on, each with its load of brave young men. Wave on wave, to destruction.

Perry stood watching for several moments. Viewed from the distance, the tanks looked hardly bigger than they would have, had he been normal size. His position was sort of a joke. He was standing where a general from another planet should have stood while directing his guardian robot army. But he was helpless.

"Kerwin is still at it," Perry remarked at last, his voice so matter-of-fact that it was startling.

He was thinking bitterly of many things. Of the way plans were made, hopefully, till they became faith. And then the disillusion of miscarried results—of fact. Like this buried utopia. Its creators had worked for its realization. They had achieved it, but they had vanished. Like himself, and like Rod Murgatroyd. Rod, blinded, but talking with hollow magnificence, of a strange heritage. Path of Progress. The inspiration of a more ancient science to spur mankind on. Oh, it sounded good, but it was all—screwy!

Wilcox blew up at last. "With Kerwin in control, Rod's probably already dead—lynched by a mob!" he said. "And here we are, down here, a couple of helpless peewees! I suppose we could go back to normal size—back the same way we came here. There are controls there in the entrance chamber. But what good would that do? We'd still be peewees!"

But Troubles was of a somewhat different attitude. "Maybe inch-high peewees like us have advantages at that," she said significantly. "Look, fella."

She was pointing to a slender, graceful object that rested in a metal frame over their heads. It was very like an airplane, with short, stubby wings. But instead of propellers it had rocket nozzles. Wheels on its bottom, clung to a helical guide rail that spiraled upward inside a great, vertical tube that must find its way to the surface somewhere. Apparently the tube was the inside of the staff held by the golden colossus above. And the staff penetrated the cavern's roof.

"Naturally, being as advanced in science as they were, those old people would keep something to get about with, wouldn't they?" Troubles questioned, as she climbed up the ladder to the craft's cabin entrance.

OPENING the door was a difficult thing; but Perry bounded up the rungs and was helping her. He was ready to take his chances too, in spite of his talk.

The door opened under the hammering pressure of his calloused palm. There was space inside for two or three people to lie prone. The controls were not unfamiliar. There was a joystick, and a second lever which must take the place of rudder pedals.

Perry was wigging, the control. They were stiff but not immovable. With an

eye of a practiced airman, he noted what they did to the tail and wing fins. So far, so good. He turned a small valve on the dash. There was a creaky, rhythmic sputter from behind. Evidently there was still fuel in the tanks. In response to the brief rocket thrust, the craft rolled a little way up the spiral guide rail. Then back to norm as Perry returned the throttle to its original position.

"So what?" he said with a shrug. "Nothing funny about finding this crate here. It's made of the same kind of evidently almost uncorrodable metals as the instruments here in the control room. So it should last forever. And the old-timers must have longed for the great outdoors sometimes. That's logical enough. But there isn't the sign of a weapon—nothing we could use to attack a giant. And Kerwin is a giant, now, in relation to us!"

"How about bluff?" Troubles questioned, dimples of exasperation showing at the corners of her mouth. "Come on, bonehead. Quit stalling! Haven't you got any imagination at all?"

Wilcox grinned at her, startled and admiring. Her attitude gave him a lifting sense of adventure. "Okay!" he drawled. "Funny, though—I used to think you were a friend of Kerwin's. Of course, you could be trying to pull a fast one yet, I suppose!"

"And I could knock that pug schnozzle of yours flatter than it is, for that crack!" Troubles returned. "Come on! Let's see action—if you're good enough to get any out of this thing!"

Perry opened the throttle. A little at first, then more and more. Speed was built up. It became a dizzy whirl. Around and around that spiral track, up and up . . .

LYMAN KERWIN sat in his office, topping the great Kerwin Building at Chicago. Glass surrounded him—thick, green-tinted, bullet-proof glass. Above him, beyond the metal-ribbed sky-panes of his eyrie, the star blinked. Lyman Kerwin was studying the notes of the speech he was going to deliver in five minutes.

Thoughts went racing through his fevered brain. Thoughts of satisfaction and triumph. Here he was like a god, far up above the rabble. What did it matter if a lot of them hated him, and mistrusted his motives? They were afraid of what it was out there, not so many hundreds of miles to the northwest. He'd see that they remained frightened, as long as it was necessary.

They didn't know what he knew—what the poor fool, Professor Vince, had found out—that the enemy were only machines, awesome in their powers, but incapable of organized thought. Someday, when Vince had learned more for him, and when there'd been enough fighting to give him full control of the country, those robots would doubtless provide him with a means of keeping his power in hand, even of extending it.

Lyman Kerwin arose from his chair and strode to the paneled cabinet in the corner. He entered the cabinet and snapped on the brilliant lights on either side of him. Facing him was a radio microphone and a pair of lensed, television eyes. He had only to close a switch to make himself visible and audible to the waiting world.

Above him was a mirror. Kerwin admired himself in it. He knew he wasn't handsome—in any ordinary way, at least. It would be better, of course, if he were young. But he looked like a master. He looked clever. Yes, he *was* clever! A genius! And his new, black uniform was slick, becoming the role he must play. There was a badge on the coat lapel. U. S. in black blocked letters, against a red background. And

at the center, in a gold star that was like a small, bright halo of glory, his own initials in black—L.K. The badge was his own idea, and the jeweler had wrought skillfully.

It was almost time for the speech, now. Kerwin turned about to get his notes. He stopped in chagrin. The papers on his desk were burning merrily! How they had become ignited, he couldn't imagine, since he hadn't been smoking. It was unnerving. The first wave of fright went through his cowardly soul as he bounded forward to brush the burning papers to the floor, and stamp out the flames.

He hadn't seen the tiny, two-inch thing, like a miniature plane in shape and function, that had come down through the ventilator above. While his back was turned, it had darted toward the papers. Its atomic rocket blasts, blue and almost invisible, yet terrifically hot, had touched the litter on the desk. Now the minute intruder clung, inactive, by means of anchoring claws, to the wallward side of an urn of flowers atop a bookcase.

Kerwin shrugged his hunched, sloping shoulders. "I don't need the notes," he thought, trying to reassure himself —trying to drive the nameless, uncanny fear out of his heart.

He walked to the television cabinet and snapped the switches. It was time to broadcast.

"My friends," he began. "Today we have started the big push against the Murgatroyd-Wilcox Horror. It may be that hundreds of thousands of men must die in the battle to hold this terrible enemy in check. But this cannot be helped. I have tried to do my part. I appreciate the great honor that has been bestowed upon me in making me Director of Defense. But for efficiency, I cannot go on in this manner. There is too much bickering among people who are not sincerely fighting for the welfare of humanity. I must have the means to command, and if necessary, silence these individuals. I must have full control of all the nation's resources. In this emergency, not a moment must be wasted in friction—in lack of cooperation. I have—"

Kerwin's small eyes were beginning to shine, but he stopped abruptly.

VERY near to him, he heard a tiny voice speaking. Its tones were like the tinkling of minute flakes of glass. It was an impossible voice, and yet a vaguely familiar one. Though it seemed close—almost at his shoulder—still it seemed, too, to be shouted from a great distance:

"Interesting speech, Kerwin! Well planned! You've reached the crucial point in your scheme, huh? All right! Go on! Don't hesitate!"

But Lyman Kerwin's words had broken off. He half turned. Then he remembered his audience—millions of people observing his every move by means of television. He didn't dare show any fear or disconcertion, now! The rabble must believe in him. But a cold dew of terror was breaking out on his bald pate and skinny cheeks.

"I have—I think—p r o v e d my worth," he continued, stammering into the microphone. "I must not be hampered by—by the President of the United States, and by—Congress. I—" Kerwin's voice was becoming a thin squeak.

"What's the matter, Kerwin?" came taunting words in those thready, elfin, confident tones. "Got stage fright or something? Don't act like that! Pull yourself together! People will start laughing at you, first thing you know!"

"I—" the crooked financier gurgled, struggling to go on with his oratory from where he had left off; but nerv-

ousness seemed to have strangled him.

And the unseen, pixy speaker went on: "Come now, Kerwin!" he was chided. "This won't do at all! You're a big man, you know! You've sent thousands of youth to their deaths already—just for your own glory. You can't let everybody know you've got a yella streak a yard wide. . . . No, stop! Don't go turning off those switches! It happens we could kill you in a split second. On the second thought, maybe it's just as well folks see what goes on here. You wouldn't want anybody to be misled, would you? There, that's better! Don't shiver so much. Don't turn. Just stay where you are. . . .

"That's probably a real good microphone you've got there, Kerwin. It'll probably pick up even my voice, so everybody can hear it. I'm not exactly just the voice of your conscience, you see. Nor am I so easily ignored. By now many men know what you're up to, Kerwin. They know about those robots —that they're only mechanical things intended for defense. They've learned this fact in the front lines. But you've been clever enough to keep them there, where they'd be killed quickly. But we know more about this so-called 'Murgatroyd-Wilcox Horror' than you or your scientists do, Kerwin. Because we've been—and so to speak still are—*on the inside!*

"There's just one thing for me to say to the world, Kerwin. There isn't time, right at this moment, for complete explanations. But I think many people will anticipate my suggestion—that the army be withdrawn to a distance of half a mile from its present entrenchments. I do not think it will be attacked there. If we are given ten days to work—Miss Lyssa Arthurs, late of the *Brenton Herald,* and myself, Perry Wilcox—I think the trouble will be cleared up."

The little voice took on a sharper edge, as it addressed itself more directly to the financier: "You can turn around now, Kerwin. I guess it's the end, huh? They've seen you, they've got your number. They've heard me talk. Maybe they're wondering what it's all about. Maybe they're scared and uncertain. But one thing's sure—you're through. You're a yellow fake, Kerwin. . . ."

SLOWLY the financier pivoted on rubbery legs. His now bulging eyes saw nothing but the great room, which was to have been the focus of his empire.

Quivering with a horror that was part nameless and partly born of the knowledge that he was an exposed enemy of society who could never escape, Kerwin backed along the wall. He reached a window, and tugged at its fastenings for air.

He gave a start as a low hiss sounded near him. Looking back, he saw a little dartlike thing, spitting blue flame, and swinging close. It had an ugly, alien look. He ducked it, screaming. With wild clawings in which no reason remained, except to escape that devilish, hissing unknown, he climbed to the window sill. There he toppled briefly, babbling:

"I didn't mean it! No! Don't! . . . ."

A moment later he pitched, with a wail of terror, toward the street far below.

This time he hadn't heard two faint tinkly voices, shouting a belated warning. Perry and Troubles hadn't meant to frighten him to this extreme.

The plane flew back, alighting before the microphone, and in the path of those television lenses. Two little doll-like beings descended from the craft. For ten minutes Perry Wilcox talked, telling what had happened; and the world saw

and heard. Then he and his companion returned to the plane. With a hiss it flew toward the ventilator in the ceiling. And the city below, hummed in wonder.

THERE were some doubts, of course; but the big push was stopped. A week later, the army, watching from its new, rearward trenches, saw a sudden cessation of motion on the citadel they faced. Most of the gleaming Titans there, stood still in their tracks, as though frozen in the morning sunshine.

Perry Wilcox and Lyssa Arthurs were pulled, inert, from the vat of green liquid by attendant robots left active for the purpose. They had submitted to the reversal of the process of decreased size, and now they were normal again. After an hour they awoke. They passed through the exit tunnel, and out into the open air. They climbed down the silent slopes beyond the ramparts.

They reached the ragged, battered river flats, strewn with wreckage and dotted with silent metal giants. Then someone hailed them. A tank, piloted by a soldier, pulled close. Its turret opened, and a head was thrust out. Perry saw a new Windsor tie, new checkered shirt, a thin face, a bit blistered, and red hair, singed short—only, there was a bandage over the eyes.

"Rod!" Perry gasped. "I thought—"

Old Roderick Murgatroyd laughed. "I know," he chuckled. "You thought Kerwin's roustabouts lynched me. But when they stormed the hospital, I wasn't there! Fooled 'em. Sneaked off. Then some newshounds cornered me. But never mind that! See! I've got my newsreel rig!" He was clutching the small camera strapped around his neck as he continued plaintively: "I want to take some pictures, Perry. Darn, I can't wait for my eyes to get better! Show me what's good. Path of Progress has made its greatest hit. We've got to carry on, Perry. . . ."

Wilcox' face was suddenly pained. But he kept his voice brisk. "Sure we've got to carry on, Rod!" he enthused. "Hurry up and get out of that tin wagon! There's at least a hundred battle automatons standing here around us!"

"Hang the automatons," said the old scientist, jumping down lithely with the guidance of Perry's hand. "I want a picture of you, first!"

"That means Troubles too, then," Perry shot back. "I think you'll be buying wedding presents before very long!"

"Jupiter! That's swell! Now, let's see. . . . Just where are you?"

"Right here, Rod!" Lyssa said briskly, a small, unnoticeable catch in her gay tone. "Standing close together. Shoot!"

They let him take his time, fumbling eagerly but clumsily with his camera. And from his enthusiasm they drew many thoughts. He was a little like the leader of those people from interstellar space, who had built themselves a lovely, forbidden paradise in the small —a paradise that native Earth men would never colonize, though there might soon be found many uses even for the ionic science that had made it possible. Exploration of places that full-size men could never reach. A miniature secret service, perhaps.

The golden statue on the crest of the Pantheon, down there. Old Rod belonged to that same class—an idealist. Nor could Perry Wilcox scoff now, for he was one himself.

In the silence, Rod Murgatroyd's camera mechanism worked. In the background, above the scarred slope, smoke arose silently from the vent of a subterranean factory.

This was old Rod's moment of triumph. So Perry and Troubles could not tell him that his eyes were gone.

What's Wrong with Rockets?

(Continued from page 49)

It is, in fact, more likely that good results will be obtained if one man is put in a position to work alone with only a few assistants along one single line of research—even though it may not be the famous and mostly unknown "line of least resistance"—than if three presumably brilliant men handicap each other. The result in that case is at least loss of time and inefficiency, often worse.

Such a statement naturally gives rise to the question: what amounts of money are needed to carry on? To answer this it is not only worthwhile but even necessary to state in condensed form what has been achieved already and what should be achieved next.

The work already done consisted of finding ways and means to handle the theoretically advantageous liquid fuels, to show that rocket motors can be made to work, to work with sufficient power and to work for sufficient length of time. That length of time is surprisingly short; one or two minutes are long enough for most purposes, actually rocket motors have been made to stand the terrific strain of the continuous explosion going on inside of them for twenty-five minutes. The power or thrust exerted was also promising enough; it remains only to increase efficiency.

Fortunately that cannot be very difficult to do, because there exists no simpler engine than a rocket motor. It consists of only three parts, the injection nozzles which force continuous streams of fuel and oxygen (and, in some constructions, a cooling medium) into the second part, the so-called combustion chamber where the mixture is ignited and burned to escape through the third part, the exhaust nozzle. To increase the efficiency of that assembly one must *not* do one thing, one must not make it more complicated. The secret is one of proper shape and size, to be determined experimentally after theoretical investigation has ruled out those shapes that certainly do not work.

Aside from the rocket motor a liquid fuel rocket consists of two or three tanks, one for fuel—gasoline, alcohol and light oils have proved themselves to be very good, efficient and reliable rocket fuels—one for liquid oxygen and the third for compressed nitrogen to force the contents of the other two tanks into the rocket motor. The tanks are usually tubular to decrease air resistance and are grouped either in the form of a triangle or in one straight line. There are a few stabilizing fins placed in a convenient position and somewhere there is a compartment for a small parachute with a simple device for ejecting it at a set time.

The whole thing works in the following manner: After nitrogen pressure has been brought to bear down upon the liquids, and the valves that block the fuel lines to the motor are set to be released simultaneously, the ignition system is made ready. It usually consists of a jet of flame produced by a blow torch fastened to the launching rack and playing just underneath the exhaust nozzle of the rocket. Then the fuel valves are released, fuel and oxygen shoot into the combustion chamber and, coming out through the exhaust nozzle, catch fire. Unlike an internal combustion engine with pistons a rocket motor does not require continuous ignition, once ignited it works until the fuel supply is exhausted or cut off. The rocket then rises from the launching rack, fairly slowly at first but accelerating steadily. As long as the rocket motor works the speed increases although not exactly according to the rate of acceleration. On the one hand the acceleration increases because the weight of the rocket decreases (due to the consumption of the fuel) while the thrust of the rocket motor remains the same, on the other hand the air resistance grows with mounting speed. All these factors can be calculated however, and calculation as well as actual experiment have shown that, generally speaking, the speed of the rocket is highest at the moment the fuel supply is exhausted. Therefor the rocket does not fall back as soon as there is no fuel left. It then behaves exactly like a projectile fired from a cannon. It continues to rise until air resistance and the influence of gravity stop it. It is for that moment (calculated in advance to within seconds) that the clockwork mechanism of the parachute ejector had been set. It started to work automatically when the rocket pulled out of the launching rack. The return is then simply a matter of dropping by parachutes.

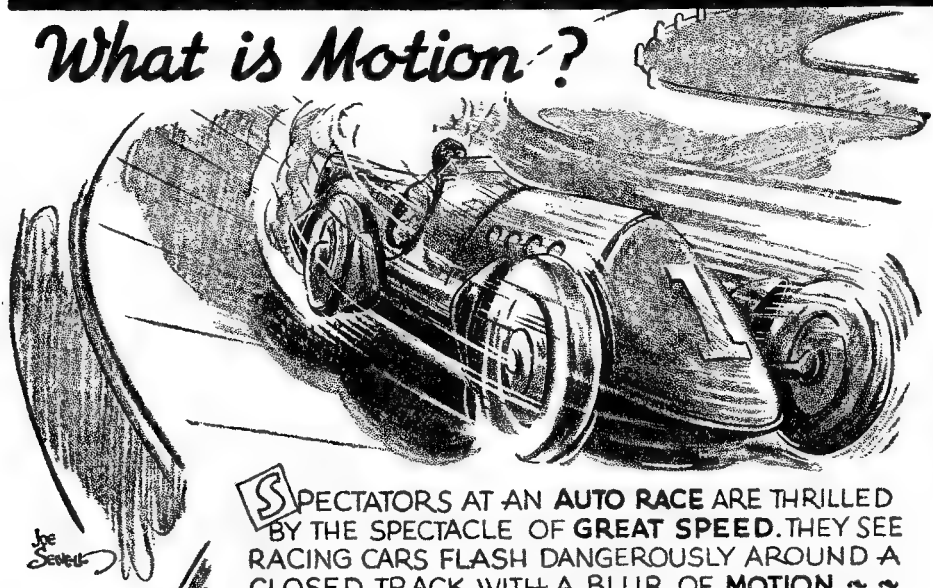
Such a performance, which might be termed the "natural" performance of a liquid fuel rocket, lands itself without strain for meteorological research. Many branches of modern activity are tremendously interested to know what happens in the stratosphere. Aviation likes to learn about it for the direct purpose of stratosphere flight. And since it is more than likely that conditions in the stratosphere influence or even control the weather in lower layers, the results of stratospheric exploration will in all probability be of great value to navigation, to ordinary aviation, to agriculture and to every other activity concerned with or influenced by the weather.

There exist many good instruments that are perfectly suited to inform us about conditions in the stratosphere. But they have to experience these conditions first, in other words they have to be brought up beyond, say nine or ten miles. Stratosphere balloons can do that and have done it, but they are risky and tremendously expensive. So-called "pilot balloons," small un-manned balloons that carry a bundle of instruments, burst at the ceiling of their flight and return the instruments by parachute, can do that too. But although they are inexpensive they are unreliable as well, being carried by the wind in whatever direction it happens to blow. Many of them are lost completely and the altitude they reach can never be predicted. These instruments

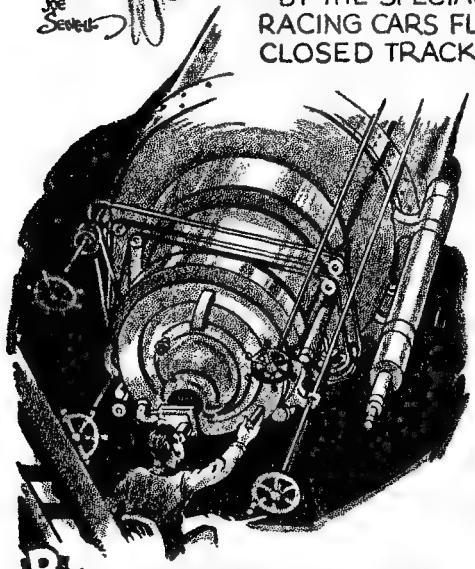
(Concluded on page 145)

RIDDLES OF SCIENCE

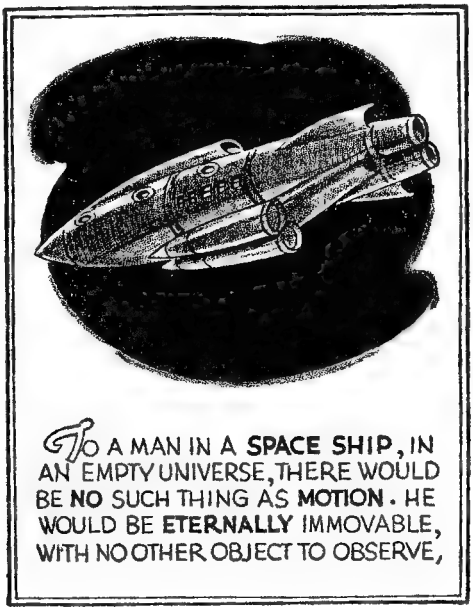
What is Motion?



SPECTATORS AT AN **AUTO RACE** ARE THRILLED BY THE SPECTACLE OF **GREAT SPEED**. THEY SEE RACING CARS FLASH DANGEROUSLY AROUND A CLOSED TRACK WITH A BLUR OF **MOTION** ~ ~



BY COMPARISON, THE **MOTION** OF HEAVENLY BODIES IS TREMENDOUS, BUT ALL PERCEPTION OF SPEED, OR EVEN **MOTION**, IS LOST BY A LACK OF CONTRAST.



TO A MAN IN A **SPACE SHIP**, IN AN EMPTY UNIVERSE, THERE WOULD BE **NO** SUCH THING AS **MOTION**. HE WOULD BE **ETERNALLY** IMMOVABLE, WITH NO OTHER OBJECT TO OBSERVE,

MOTION is, paradoxically, something we cannot definitely say exists or does not exist. We depend entirely upon comparison to define motion. We say a car moves because we can compare its motion with relation to the ground, in relation to our own position. We say that the planets move, because we can compare their motion with the fixed stars. We depend entirely on relation of position in regard to another object, to define the rate of motion. But what that motion is, we don't know.

Meet the Authors

A. R. STEBER Author of

BLACK WORLD

EVER since my first contribution to AMAZING STORIES which was so well received by the readers, I have been working seriously on another science fiction story. Frankly, I admit that it has been a job that wasn't quite worth the midnight oil—because computed on an hourly wage basis, I lost more money than I care to admit. Couple this with my recent journeyings through Canada and Alaska, you can gather that the writer has done excellently to eat once a day!

But he doesn't regret it! No sir! Writing "Black World" has been one of the rare pleasures of my literary career. To me, the world of the future is a real world. It exists, somewhere on the stream of time. And in that world live and move human beings just like us. The only difference between us is that they face a different environment, and different problems, insofar as mechanical things go. The similarity exists in my own personal belief that emotions, and human characteristics are unchangeable. Men and women will love, fight, betray, and repent all along time's shores. Time is a relative thing, and it might just as well consist of only one instant, insofar as the human element is concerned. Man and woman will never change.

I've borne that in mind in writing "Black World." It is a story of future science in a future world, yes, but it is also a story of a man and a woman, who exist in all times and all worlds! That, to me, is the important factor to consider in writing any yarn. I've considered it here. I like Ina Malden, perhaps because she is a real person in my life, and I myself am John Carver. I wonder if I will ever reach the conclusion as John Carver and Ina Malden reach it?

Which brings us back to me. Since last I saw you, via the Meet the Author department, I've lived, loved, and learned a lot. I've roamed around a lot. I've seen a lot. Alaska is a grand country.

And that's all that has happened to me in a year. Wrote exactly one story, cut innumerable trees down, raised innumerable blisters, and got fired from innumerable jobs—all because I haven't found the answer to life as yet. I'm going to keep on looking—and maybe I'll write a few more stories as I look, just to break the monotony. I hope you like this one!—*A. R. Steber.*

PETER HORN Author of

VAGABONDS OF THE VOID

ONE thing I learned a long time ago: the minute an author opens his mouth about himself, he's through. Knowing that doesn't seem to make any difference though, for here I am doing it just the same. Seems that when an editor asks a writer to do something, that's the end of that too.

I was born twenty-eight years ago in New York City, and of the last eight, I've spent seven away. Six months in Haiti before I was twenty-one, in the depths of the depression, sort of gave me a peculiar outlook on life. I saw men shot down in the streets in the job riots in Cayenne, and I worked side by side in lumber camps with blacks descended from the men who had beaten Napoleon. It was very elevating, but I was young, and somehow my six feet three and meager hundred and sixty pounds managed to live through it.

Then came a year and a half in Costa Rica, checking lists for a half-pint shipping company in the Gulf of Nicoya. That happened when I got into a talk with a freighter captain on the docks of Port au Prince one day, and the next thing I knew I had paid the man forty bucks to get me across the Carribean.

The only things that happened, outside of excessive boredom, once I got to Nicoya, was a broken leg from a burro that someone had fed fire water or something, and a girl named Paula whom I almost married. Oh yes, there was the day Paula's brother Carlos held on to my wrist for half an hour before help came. I'd almost fallen into the Orosi volcano, where I'd gone like any tourist. That's how I met Paula.

From Nicoya to Mexico City, to San Francisco for a week, and then by easy stages to Hawaii. In the next four years I worked in the Gilbert Islands, doing office work for a bunch of petty chiselers who harvested pandanus fruit—where, incidentally, I consider those years wasted. Add another year on Baku Island, playing nursemaid to a pineapple plantation.

Then I got sick of the whole business, but not sick enough to want to go home. So, packing a duffle bag halfway through, off again to New Zealand, where I worked on a small barley farm and helped a crew tap kauri-gum—tree resin—in the Auckland peninsula. And that finally got me. That and a pert young English girl, who couldn't seem to forget the fogs that used to wet her blonde hair on those autumn mornings in Manchester.

One day I ran into a guy who was reading "The New York Times," and it got me right in the pit of the stomach. I'd been saving a little money here and there. I grabbed what I had and beat it home, hardly stopping to eat on the way. New York scared the hell out of me when I finally got there.

Most of the guys I went to school with are married, and maybe I'll be that way soon. Meanwhile I'm sitting at my ease and remembering some of the things I've seen.—*Peter Horn.*

Science Quiz

The following quiz has been prepared as a pleasant means of testing your knowledge of things scientific and pseudo-scientific. We offer it solely for the pleasure it gives you and with the hope that it will provide you with many bits of information that will help you to enjoy the stories in this magazine. If you rate 50% correct in your answers, you are considerably ahead of the average. Give yourself 3 points for each correct answer.

ENIGMA

1—A certain tavern owner had three tables, between which he divided 21 bottles, of which 7 were full, 7 half full, and 7 just emptied, in such a manner that each table had the same number of bottles and the same quantity of wine. This problem can be done in two ways. Can you figure it out?

2—What number is divisible by 1, 2, 3, 4, 5, 6, 7, 8, 9?

3—Which is greater—six dozen dozen or half a dozen dozen?

4—James is 24 years old. James is twice as old as Helen was when James was as old as Helen. How old is Helen now?

5—Said Fred to John, "Give me a dollar and I will have as much as you." "No," said John, "you give me a dollar and I will have as much again as you." How much money did each have?

6—If a vertebrate is an animal without a backbone, then what is Dendrite? But if a vertebrate is an animal with a backbone, what is pituitrin?

7—Talc is hydrated magnesium silicate. Now, if that statement is correct, then what theory is Sir Joseph John Thomson associated with? But if it is not correct, do you know what E. M. F. stands for?

8—If the Great Bear is the Big Dipper then what is a permalloy? But if the first statement isn't correct, then what is a peroxide?

9—If Ectoderm is the outer layer of the Gastrula then who discovered the X-ray? If the Ectoderm is not the outer layer of the Gastrula what is an enzyme?

10—Chlorophyll is the green coloring matter found in plants. If this statement is correct, then for what is a Wheatstone Bridge used? But if it is not correct then what is mosaic gold?

WHAT IS IT?

In the next statements the word "It" denotes a scientific term. Can you solve what word "It" denotes?

1—Its chemical name is Glyceryl Nitrate and it is used in modern warfare as an explosive.

2—It is a northern zodiacal constellation. It is also classified under the name of "The Lion."

3—It is a gland that is located in the lining of the stomach. The principle enzymes it produces are pepsin and rennin.

4—It is a disease caused by the failure of production of the hormone Insulin by the Pancreas.

5—It is an instrument used to measure the E.M.F., or voltage, of electricity.

TRUE AND FALSE

1—A mammal is an invertebrate animal with hair, teeth and mammary glands. True .... False ....

2—Hemoglobin is the iron containing protein in the blood plasma that carries oxygen. True .... False ....

3—In magnetism unlike charges attract and like repel. True .... False ....

4—Bile is a secretion produced by the kidneys. True .... False ....

5—Andrenals are two glands situated on either side of the neck. True .... False ....

6—Isotopes are atoms which have same atomic number but different atomic weights. True .... False ....

7—A satellite is a planetary body which revolves around the sun. True .... False ....

8—Thyroglubun is a hormone secreted into the blood by the pituitary gland. True ....False....

9—A zygote is produced by the union of two gametes. True .... False ....

10—Humus is the colored substance formed by the decay of organic substances in the soil. True .... False ....

BRAIN TEASERS

1—For what purpose is a calorimeter used?

2—What planet was discovered by William Herschel?

3—What is the natural color of goldfish?

4—If Morphology is the science of structure then what is Taxonomy?

5—What is the technical name for hematite?

6—Phenolphthalein, which is ordinarily colorless, turns pink in what type of solution?

7—Sirius, or Alpha Canis Majoris, is located in what constellation?

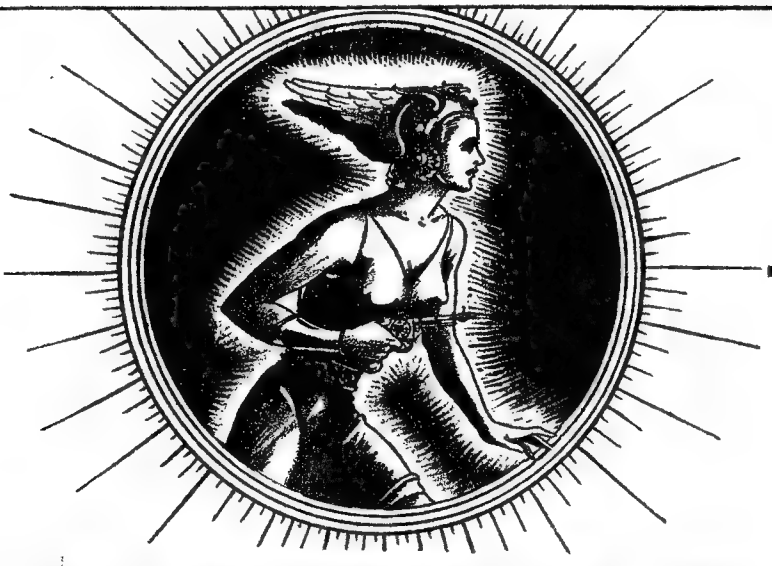
8—The rare and valuable element, radium, is obtained from what ore?

9—What portion of the body does the disease, Acne, attack?

10—A person who takes the study of Entomology up is well versed in what subject?

(Answers on page 142)

SHE'S COMING BACK...!



JALU OF RADIANT VALLEY
by Orlin Tremaine

. . . a valley buried deep in South American wilderness . . . hemmed in by radio-active cliffs . . . a land where there is no night . . . where life WAS Utopia . . . but then there came a vision of the cupola of the palace above the square of Okka. It looked like the calyx of a great white flower—with white flames for petals. In the midst of it stood, like a priestess out of some olden time, Jalu, the Golden One, her arms uplifted, her face raised as though she prayed. Angel Gabriel, Kalen thought, must look as Jalu's image did at this moment . . . it was black magic! Her voice cut through the sounds the beasts made, attacking Okka, even over the sounds of battle. "Hear me, Sire! If you capitulate to the rebels, I shall cast myself down from this high place, into the heart of the flames! I would rather die than that Kalendar be less than what we desire!" Kalen, his face a mask of grim composure, turned to Orkus. "You heard? Set the tractors in motion . . . !"

DON'T FAIL TO READ THIS THRILLING STORY IN THE MARCH ISSUE

At All Newsstands January 16

MONTHLY MERIT AWARD

The prize winners in the January contest were as follows:

Author Prize: Eando Binder, author of "Adam Link In Business".....$50.00

Reader Prize: John R. Kinch, Garson Mines, Ontario, Canada..... 10.00

Congratulations, Messrs. Binder and Kinch. You've collaborated excellently in giving us a good story, and a good exhibition of judgment in selecting stories. Keep up the good work.

The complete rating of the stories in the January issue follows:

Story	*Votes*	*Rating*
1. Sons of the Deluge	1937	.78
2. Adam Link in Business	1720	.69
3. The Man Who Saw Two Worlds	1459	.59
4. The Strange Death of Richard Sefton	1271	.51
5. Dr. Varsag's Experiment	1144	.46
6. Slaves of Rhythm	1135	.46

Beginning with this month's contest, we are changing our method of awarding the reader prize, and also changing the nature of the prize. Due to the many letters we receive from readers asking for cover paintings, we will offer, beginning with this issue, the original painting of the front cover! This will replace our previous reader award. And now, as to how you get this prize: First, although it is necessary to fill out the coupon, with all the stories rated in the order of preference, the fact that you do not rate them in the final correct order has nothing to do with winning. You simply vote as you please, and even if you are dead wrong, you aren't eliminated. Your letter of 20 words or more as to why you liked *your* number one story best will be the basis of the award. The front cover of each issue goes to the reader who writes the best letter!

So if you've wanted one of these marvelous paintings for your den, here's your chance. Send in your coupon or a facsimile, tell us why you chose your story number one for that position. All prize paintings will be handsomely framed. Do you want one?

Author award will remain the same; $50.00 for the leading story—serials count only in the month of final installment.

CLIP THIS COUPON AND MAIL

Amazing Stories,
608 S. Dearborn Street,
Chicago, Illinois.

In my opinion the stories in the March issue of AMAZING STORIES rank as follows:

	No. Here
BLACK WORLD	_____
THE STRANGE VOYAGE OF DR. PENWING	_____
PAUL REVERE AND THE TIME MACHINE	_____
VAGABONDS OF THE VOID	_____
THE SCIENTIFIC PIONEER	_____
TERROR OUT OF THE PAST	_____

Name .....

Address .....

City ..... State.....

Attached is my letter of 20 words or more, on my reason for selecting story number one for that position. ☐ Check here.

QUESTIONS and ANSWERS

This department will be conducted each month as a source of information for our readers. Address your letters to Question and Answer Department. AMAZING STORIES, 608 S. Dearborn St., Chicago, Ill.

Q. In what constellation is Uranus? Near what stars? I read recently that the stars are not as far as they are thought to be. A. Centauri being around 6 to 12 million miles away. Is it true?—Romeo Fascione, 3826 E. 144 Street, Cleveland, Ohio.

A. Uranus, being a planet, is not in any constellation. Its orbital path around the sun carries it through many constellations. Yes, there has been a theory advanced that makes the universe much smaller than previously thought. However, this has no credence among accepted scientific circles, and because of lack of any proof whatsoever, may be disregarded.

Q. Could you tell me if astronomers have proven that the sun remained motionless for about one day as in Joshua X, 12? If so, is there any explanatory theory?—Sam Stallard, 28 Duke Street, Truro, N. S.

A. In reference to the earth, the sun has always been motionless, although it proceeds on a huge orbit of its own around our own island universe, and perhaps on an even greater orbit of the cosmos. What you mean, is has the earth ever stood still in its orbit so that the sun appeared not to move in the heavens. Definitely, it has not. There is no scrap of proof, and no theory that could possibly explain it. However, this does not discredit Joshua in the least. It can be safely assumed that some sort of illumination could very easily have been mistaken for continued sunlight for a period of a whole extra day. For instance, a large comet, visible to Joshua and his hosts only through a cloud blanket, which would admit only light, and not its source object. But the earth has never halted in its rotation or orbit.

Q. Would you please complete the following statement for me? It reads: "The exact composition of water, as determined by the American chemist...?...is...?...part (s) by weight of hydrogen to...?...part (s) by weight of oxygen? —B. K., Baton Rouge, Louisiana.

A. Edward Morley, an American chemist, synthesized water (1895) from pure hydrogen and oxygen, all of which were carefully weighed. He obtained the ratio of 1:7.94, which is the result generally accepted. This ratio shows that water contains 11.19 per cent of hydrogen and 88.81 per cent of oxygen.

Q. Is glass a good conductor of electricity at sub-zero temperatures? (About —136 to —140 degrees below zero, or lower). Charles D. Finley, 254 So. El Molino Ave., Pasadena, Calif.

A. Glass may be magnetized by rubbing it with silk, but it is not a good conductor of electricity. It contains lead, and lead is not a conductor. As to the effect of temperature, there is some, but not enough to make it a good conductor.

Q. How many kinds of hydrometers are there and what is the use and principle of each? Also, explain the principle of a mercury barometer.

A. There are many kinds of hydrometers, used for various different purposes, too numerous to list here. The ordinary hydrometer consists of a smooth, transparent glass circular tube of uniform cross section and thoroughly annealed, usually terminating in one or more bulbs, the lower of which may be filled with mercury or shot in order to keep the instrument steady with its axis in a vertical position when immersed in a liquid. It is graduated to furnish direct readings of the specific gravity of a liquid. The mark to which the instrument would sink when placed in water is usually 1.000, and the weight of water displaced is equal to the total weight of the hydrometer. If the instrument be placed in a liquid that has a less specific gravity than water—alcohol, e. g.—it will sink until the surface of the liquid touches some point higher up on the stem, as in this case it takes a greater volume of the lighter liquid to be equivalent to the weight of the hydrometer.

The mercury barometer is the outcome of the observations of Torricelli, who knew that atmosphere has weight. He observed that pressing upon the water in a well, forced a portion of it to rise up the bore of a pump as fast as the piston rose. The fact that water could not be made to rise more than 33 feet in this manner showed to his mind the limiting pressure of the atmosphere, viz., about 15 pounds to the square inch. Torricelli, in 1643, asked Viviani to use a short glass tube closed at one end, filled with mercury, and inverted in a basin of that heavy liquid. As he predicted, it was found that a column of mercury 30 inches high, corresponding to the atmospheric pressure, was held up by the air pressure, and the upper portion of the tube was empty. It is this empty space that is called the Torricellian Vacuum.

The ordinary student manuals of practical physics contain descriptions of barometers and their use, while further information can be obtained from the circulars and bulletins of the United States Weather Bureau.

DISCUSSIONS

AMAZING STORIES will publish in each issue a selection of letters from readers. Everybody is welcome to contribute. Bouquets and brick-bats will have an equal chance. Inter-reader correspondence and controversy will be encouraged through this department. Get in with the gang and have your say.

NO CINCH

Sirs:

This is my first letter to AMAZING STORIES, and as a matter of fact, to any science-fiction mag, and if I convey one thing, I'd like to say that in my opinion, AMAZING is the best of the mob. And, brother, I read 'em all.

However, the Discussions column bores me no little, simply because the fans display such an adolescent interest in illustrations. They don't realize that you're giving them the best possible illustrations you can get and that if you could get better artists you wouldn't be in the pulp class, I suppose. Again, drawing for pulps is no cinch, what with all the gadgets, etc., and the readers never take that into consideration. Fuqua, Morey Krupa, Paul—there's no outstanding difference, and I'll argue that out to my last day.

Nelson S. Bond, I suppose, is about the best of the crop right now as far as authors go, but I'm wondering if you're not pressing his stuff too much. I sincerely hope he doesn't turn out to be a flash in the pan, because he's too good for that.

Rick Boyd,
342 W. Orange St.
Lancaster, Pa.

A LEWIS FAN

Sirs:

Although at the bottom of your list, "The Fate Changer," by Richard O. Lewis is "tops" with me in the September issue of AMAZING STORIES; your magazine contains some very fine material.

I liked this one particularly because it tells the story so convincingly and without annoying, superfluous detail. It is intensely interesting and has an effective climax. In fact I was completely fooled as I had it all figured out differently, and to my mind, that is the test of a very good story.

Hoping for more stories from the pen of Richard Lewis.

John V. Ryan,
615 5th Ave., So.
Clinton, Ia.

Mr. Lewis has been coming along, and you'll find another of his stories in this issue. It's a story that ought to intrigue you greatly, and we hope you'll find time to make a few comments on it.
—Ed.

LIKES CARL SELWYN

Sirs:

I selected the story "The Strange Death of Richard Sefton" first because it is something different. Here is one story that kept me guessing 'till the very end. It would be very nice if more of its kind were published.

Mrs. Isabelle Schwartz,
133 Van Buren Street,
Brooklyn, N. Y.

Mr. Selwyn will be very glad to know that his story kept you guessing. That was his purpose, and if he achieved it so successfully, you may be sure that he will try to do it again. We think that Mr. Selwyn, (who is only a youngster) will develop into one of the finest science fiction writers in the field. And we want to go down on the record for this prediction!—Ed.

LOST CONTINENT?

Sirs:

Although I personally doubt that "Atlantis" was a lost continent, or even a lost island, in the Atlantic ocean and tend to believe that it was just another name either for a city in the Shott el Jerid (North Africa) or for Tartessos-Tarshish-Scheria near the mouth of the Guadalquivir, I admire the way Bond wove a tapestry of a great number of different and unconnected legends.

Williams' "Rockets Over Europe" was also ingeniously constructed from suspicions, guesses, and reports. But I cannot possibly endorse (not even in a story) a mechanism that turns a rocket around in flight, especially when it has almost reached its target and has, therefore, a very high velocity and certainly no fuel left for a return trip, even if there were no velocity to be killed.

Willy Ley,
35-33 29th Street,
Long Island City, N. Y.

CONGRATULATIONS MR. BOND

Sirs:

Having just finished the concluding installment of "Sons of the Deluge" (one of the few serials that ever appelaed to me), I want to express my opinion that the story combines all the best features of scientific fiction with hardly any of the bad ones.

It goes to bear out the thought stated by Omar Khayyam in his 73rd quatrain, by Solomon in verses 4-11 of the first chapter of Ecclesiastes, as well as by many others.

Mr. Bond is to be congratulated on his careful compilation of most of the fragments of information that have been handed down to us about Atlantis, as well as on his unusually apparent familiarity with the American Indian and other languages.

Hoping against hope again to read such another entertaining narrative, I still remain, after all these years, enthusiastically yours,

Paul Vogenitz,
Box 325, B. Franklin Sta.,
Washington, D. C.

CLARIFY OUR STAND

Sirs:

At last you quite clarify your stand when you say that if you were to receive the famous Wells' TIME MACHINE you would term it as a travelogue! Implying, of course, that you would reject it, even as you have rejected the Professor Jameson stories—perhaps for the same reason. As a matter of fact the Time Machine utilized *two* sciences in place of Amazing's usual *no* science. Both evolution and sociology were used, aside from the theories presented regarding time.

And while I am certain that you never even consider the suggestions that regard a change in your policy (it is sacred, you know) I am going to be bold enough to ask that you accept occasional stories that conflict with your policy if they are interesting to you the editor. And please ask your authors to use a science they have neglected for quite a while—the science of writing.

Perhaps if you do something like that I will be able to read at least part of the stories you print. I don't expect you to print this—because I know the parts you have cut from my other letters.

James Michael Rogers II
2006 Court Street,
Muskogee, Oklahoma.

You've said something, there, James. And I think your editor finds an answer in order. First, you hit the nail squarely on the head. Mr. Jones can tell you himself that his Jameson rejects have been on exactly those grounds: "no story—just a travelogue." And if you can fathom that yourself, mightn't it be possible that your editor is RIGHT? We certainly want a Jameson story. But so very many of our readers have said the stories were dull, and baffled them because there was nothing familiar about them. That Professor Jameson doesn't arouse their sympathy. That nothing underlies the scenes of the story. No plot. Jameson goes somewhere, awakens a long dead brain, and another world is described, whereupon they take off to a new adventure. Frankly, we don't think this is a story. Perhaps we don't get many stories that fit our standards, but we are constantly trying to get them. When we do, you readers invariably give it a first prize. That mean's we are right.

Now, about accepting stuff that conflicts with

FREE SAMPLES OF REMARKABLE TREATMENT FOR
Stomach Ulcers
Due to Gastric Hyperacidity

H. H. Bromley of Shelburne, Vt., writes: "I suffered for 10 years with acid-stomach trouble. Doctors all told me I had ulcers and would have to diet the rest of my life. Before taking your treatment I weighed 143 pounds and could eat nothing but soft foods and milk. Now after taking Von's Tablets, I weigh 171 pounds, can eat almost anything and feel perfectly well." If you suffer from indigestion, gastritis, heartburn, bloating or any other stomach trouble, due to gastric hyperacidity, you, too, should try Von's for prompt relief. Send for FREE Samples of this wonderful treatment and details of guaranteed trial offer. Instructive Booklet is included. Write

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29x4.75-20	2.50	1.25
29x5.00-19	2.85	1.25
30x5.00-20	2.85	1.25
5.25-17	2.90	1.25
28x5.25-18	2.90	1.35
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31x5.25-21	3.25	1.35
6.50-17	3.35	1.40
28x5.50-18	3.35	1.40
29x5.50-19	3.35	1.45
6.00-17	3.40	1.40
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our "policy." We've run at least one story per issue which is "off-trail." This issue we have two. Lewis and Bernal. Last issue it was O'Brien and Lewis. So we do accept suggestions, and our policy isn't "sacred." As for what your editor likes, you have known him a long time as a former fan, and that word "former" does not apply. He's STILL a fan. And he likes these off-trail stories, which is why he runs 'em. In short, he often goes over the head of his superiors to give you something they don't think ought to run. (And sometimes to his great embarrassment, because he was wrong!)

Lastly, we cut letters. Reason one: They are too long. Reason two: There are passages that don't belong in a discussions column. Reason three: There may be objectionable matter. Reason four: Personal remarks to the editor. Reason five: Another letter in discussions has already said the same thing. Reason six: We don't always take challenges, except in cases like this, when it is an interesting challenge.

And now, James, let's have another letter. You had some cut from this one, you know. Why? Reason four—one—two—there—five. (And that's quite a license number, eh?—Ed.

GREAT WRITERS

Sirs:

I have been an ardent reader of fantasy and science fiction for a long time, and the authors whom I believe to be the greatest writers on the subject are respectively: 1) Edgar Rice Burroughs. 2) Stanley G. Weinbaum. 3) Eando Binder. 4) Ralph Milne Farley. 5) Manly Wade Wellman.

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Joe Ripa,
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Newport, R. I.

Do we detect a bit of something or other here, Joe? R. A. Palmer isn't writing these days, and he doesn't class with A. Merritt. And what would you say if ye ed were to push better authors out of an issue by including his own stuff. Tush tush, Mr. Ripa. But thanks. We'll try to get some of those other boys in his place. They deserve your recommendation.—Ed.

JANUARY "TOPS"

Sirs:

Your January issue is tops, except for a few of the stories. Your covers are generally excellent.

I would like to make an announcement of a new fan mag. Bob Studley, Erle Korshak, and myself

are the editors, and the first issue, containing 18 to 20 mimeographed pages of fan material, will be ready soon. The name is "The Sciential" and it costs 10c per copy or subscription for three issues at 25c. Come on you fans, subscribe, and submit your controversial articles on science fiction.

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Your editors may have something in mind about Burroughs in the near future, and we'll have more definite word in a coming issue. It is true that Burrough is the greatest science fiction writer of them all, and when we present him, you can bet it will be with his best.—Ed.

THE SCIENTIFIC PIONEER

(Concluded from page 99)

visit me once in a while, will you? An' if you ever get in a jam an' I can help, just say the word."

I said, "So you mean it, then? The world offers you everything—fame, money, glory, love—and you're going to stay here in this—this cheesy little old turnip patch!"

"Don't say that, Jim!" said Hank swiftly. "This is the best place in the world for me. 'Cause I'm too durn logical. An' this is the one place where I'm at a disadvantage."

"What," I asked, wondering, "do you mean?"

He shook his head, dolefully this time.

"Turnips!" said Horse-sense Hank. "Everything else in the whole wide world I can figger the results of. But turnips is hell. It don't matter where you plant 'em or what you try, they don't never do what you expect 'em to."

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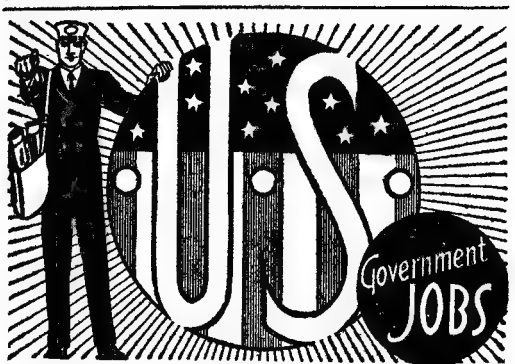

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Paul Revere and The Time Machine

(*Concluded from page* 65)

from the Old North Church belfry and ride at midnight, spreading the alarm. But, in some peculiar circumstance, never clarified, Revere was captured on the outskirts of Boston, in the company of his wife, by a British scouting patrol. Fortunately for the colonists, however, Revere's friend, William Dawes, was on hand when the signal showed from the historic old church. . . ."

I couldn't listen any more. I screamed and swooped down on Walter. "What's this all about?" I yelled. "Who is—was—this William Dawes—God bless him?" Then I remembered the man who had shot at us, the grimy man in the three-cornered hat, coming into the Tavern, his ride long over, just as the Swing had begun.

"Hank," said Walter, closing the book solemnly, "this is a lesson to you. You don't know your American history; you're a dope. Bill Dawes was left out of the poem because Longfellow couldn't find a rhyme for his name. When Revere didn't show up—due, as we now know, to his being somewhere in the Fourth Dimension with us—Dawes just naturally up and went. The Paul Revere ride is a story, but the truth is in the books, and anyone can check on it. Matter is, with fools like you, not even bothering to—"

"Why, you—"

"Out of my way," said Walter.

"Where you going now?"

Walter didn't answer. I could hear him stomping around downstairs, then coming back up. And in his hand he held two axes. "Here," he said, handing me one.

I wish you could have heard the noise we made, laughing and yelling at six in the morning, as we swung those stocky little axes at the Time Swing.

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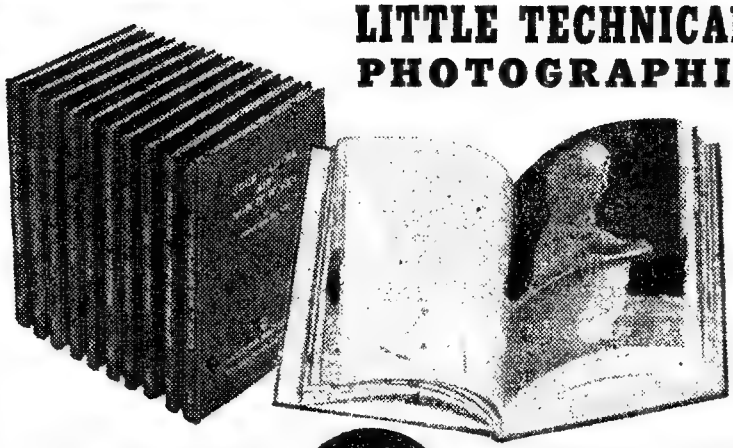

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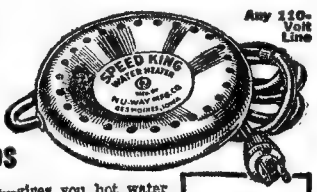

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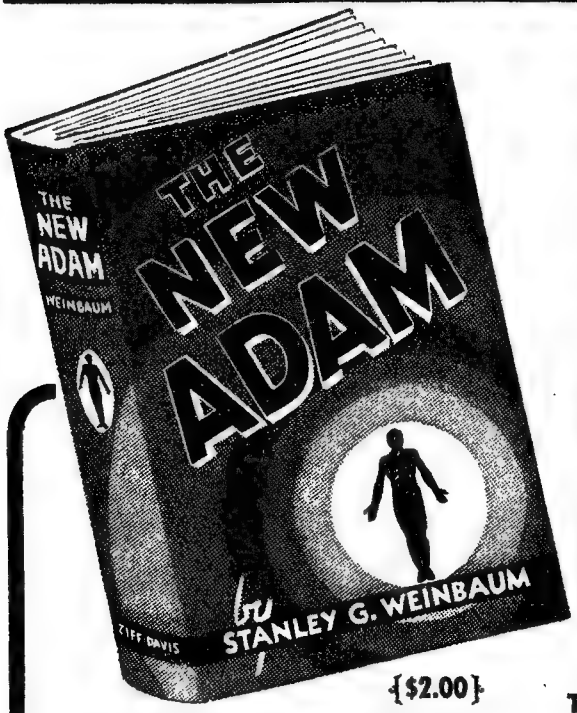

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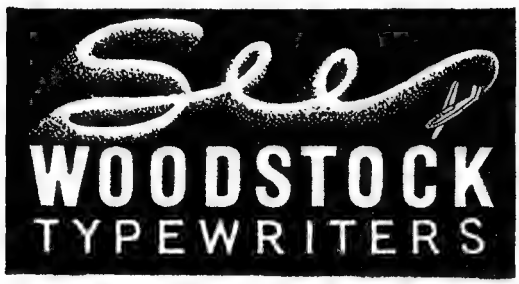

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THE NEW ADAM

WITHOUT PARALLEL IN SCIENCE FICTION

See page 141

QUIZ ANSWERS

(Quiz on page 130)

ENIGMA

The tavern owner places 2 full bottles, 3 half full bottles and two empty bottles on one table; 2 full bottles, 3 half full and 2 empty bottles on another table and 3 full bottles, one half full bottle and 3 empty bottles on another table.

2—5040.

3—Six dozen dozen is greater.

4—Helen is 18 years old.

5—John has 7 dollars and Fred has 5 dollars.

6—It is a substance obtained from the pituitary gland.

7—The electron theory.

8—A permalloy is iron containing 30-80% nickel.

9—Roentgen discovered the X-ray.

10—A Wheatstone Bridge is used to measure unknown resistances.

WHAT IS IT?

1—Nitroglycerine.
2—Leo.
3—Gastric Gland.
4—Diebetes.
5—Voltmeter.

TRUE AND FALSE

1—False 3—True 5—False 7—False 9—True
2—False 4—False 6—True 8—False 10—True

BRAIN TEASERS

1—Used to measure Calories.
2—Uranus.
3—Study of classification.
4—In natural state they are greenish in color.
5—Iron Oxide ore.
6—In the presence of a base it turns pink.
7—Canis Majoris.
8—Pitchblende.
9—It is a skin disease.
10—The study of insects.

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Radio, in its quest for new frontiers to conquer, was recently called upon to solve the most baffling problem in "blind" flying: "how high is up?" It was a tough assignment, but radio solved it. Don't fail to read AVIATION ALTITUDE VIA MICRO WAVES, just one of the many brilliant features in the

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★ **SPITFIRE SQUADRON—by *Arch Whitehouse.*** Was Whitey Trail a coward because he funked out and let a Nazi bomber go—at sight of a bridge pylon?

★ **TREACHERY IN ARCTIC SKIES—by *Roy M. Johnson.*** In order to save a life, Matthews had to make his rival's ship look good—by flying a coffin ship!

★ **MURDER: VIA AIRMAIL—by *Robert Sidney Bowen.*** There was plenty of mystery about Jeff Randall's crashed plane. Both Jeff and $30,000 in registered mail were missing!

★ **THE IRON PILOT—by *Orlando Rigoni.*** Captain Omar Golightly couldn't believe his star student would steal his robot pilot invention—but . . . !

AIR ADVENTURES

FEBRUARY ISSUE

ON SALE AT ALL NEWSSTANDS

THE EARTH'S CORE

By HENRY GADE

(See back cover painting by H. R. Hammond)

The nature of the Earth's core has long been a point of discussion among scientists, and there are several interesting theories which point to a fantastic "world inside a world."

SOME years ago, a famous science fiction writer by the name of Edgar Rice Burroughs wrote a story about a world inside the earth called *Pellucidar*. At the same time, another science fiction writer hit on the same idea. Ralph Milne Farley wrote the first of his "inner world" stories. Curiously enough, both writers got their idea from the same source, a book treating with Perry's strange experiences as he neared the north pole on the final days of his historic dash.

Briefly, what happened to Perry is this: Each day of his progress was logged, and by shooting the stars with a sextant, he found what his actual progress was in miles. Curiously enough, the nearer he got to the pole, the faster he seemed to progress. He attributed this to enthusiasm, better traveling conditions, etc., but the last few days seemed to shatter any such theories, for he traveled at a perfectly fantastic rate. Many times he checked his sextant readings, and was reluctantly forced to accept the truth—he was traveling 80 miles a day where he should have made only 30 or 40 at the most! Why? He couldn't tell.

However, this is only one factor which is brought forth to build up a hypothesis of an inner world. The others are the aurora, whose brilliant mystery colors cannot be directly traceable to solar rays, and the incredible fact that if the earth is made, as previously believed, of almost solid nickel-iron, its weight is hardly enough to take in a solid mass 8000 miles in diameter. Therefore, these theorists hold, it *isn't solid.*

In concise presentation, their theory is this: The reason Perry made such sensational speed, as shown by his repeatedly checked observations, was because he was *descending* over the lip of a great opening at the top of the earth, leading into an inner world! Therefore, he traversed a much more pronounced curvature of earth surface than a sphere of 8000 miles in diameter would present.

When he reached the point where his magnetic needle dipped, he thought he had reached the pole, but in reality, he had reached only midway into the great opening into the inner world, and the nickel-iron crust enclosing it! There he halted, planted his flag, and turned back.

To go on, these theorists say that the mass of iron in the earth's crust, weighing approximately six trillion tons, would be explained by a crust of some 60 miles thickness, and a hollow interior.

Further, they say, this inner world is lighted and heated by a central core of molten, or radio-active matter, which serves as a central sun. It is the light, or radio-active emanations from this that cause the aurora borealis, being not an effect in the upper atmosphere caused by solar rays acting on the gases of the air, but simply a reflection of this inner sun's light.

Both Burroughs and Farley were fascinated by this conception of an inner world, and both wrote stories that have proven immensely popular. Both used the same conception, and both men submitted manuscripts to a well-known editor on the same day!

But, in spite of this now popular conception, does such an inner world exist? And if it does, what are the conditions inside it?

Let us consider. First, with such a central sun it would be likely that it would be a very hot world. Like a room with a red hot stove in it, and only two very tiny windows, perhaps no greater than a couple of knot-holes in a cabin wall, to allow heat to escape. Therefore, if life exists, it would be life able to endure great heat. Tropic verdure, if greenery exists at all, would be the rule. And life might possibly be similar to that of the outer surface during the carboniferous period, or more likely, insect in nature.

Our back cover this month depicts the artist's conception of how this inner world might look, and how its inhabitants might have evolved.

An outer world man, continuing on from where Perry left off, would enter this inner world, and find that he was very foresighted in bringing along oxygen equipment, a helmet to aid his breathing, and heat-proof clothing. He would need a leadcoated shield to protect himself from the radiations of the central sun. He might even need weighted shoes and garments, since he would face much less gravity pull than on the outer surface, since it would be distributed about him, instead of entirely beneath him. And he would need any weapons he chanced to bring along, because more than likely, the insect-men of the

inner world would attack him, since he would be alien, and since life in such a world would depend on strife for its existence.

Like a hothouse, this inner world would produce giant fungus-like growths, and tremendous toadstools and mushrooms would sprout everywhere, more than likely poisonous.

Certainly, this inner hollow of the earth would be nowhere near as ideal as the outside. It would not be a comfortable, or desirable place to live. In fact, it is to be doubted if mankind could even live there, even under advanced scientific conditions. It would mean a constant, unrelenting warfare against a savage world.

In a constant temperature such as must exist in an enclosed world, there would be no such thing as rainfall. There would be only a tremendous and constant precipitation of dew. Temperature changes are necessary to cause rainfall. There would be no clouds, constant central-sunshine, and unremitting heat. The only precipitation would be at the opening, resulting in a snowstorm at the pole. Is this where we get our polar caps?

That's the theory. You can take it or leave it.

WHAT'S WRONG WITH ROCKETS?

(Concluded from page 127)

for pilot balloons weigh from two ounces to about two pounds. Even the experimental rockets already built could easily carry three pounds of additional load. They weigh about twenty pounds themselves, being approximately nine feet long and having a diameter of two inches. A rocket designed to reach an altitude of say fifteen miles would have to weigh around fifty pounds, if constructed in the same manner as the experimental models it would have to have a diameter of about three inches and to be about fifteen feet long. To attain the fifteen mile altitude from sea level about three minutes would be needed.

Compared to sounding balloons such a rocket would have the advantage of having a predictable altitude. The instruments would experience drift only during the descent by parachute—if necessary they could be traced by a small wireless device built into the rocket—and would be ready for examination in a much shorter time since the rocket climbs much more rapidly. And while a bursted sounding balloon is worthless the rocket, which returns with the same parachute, needs only cleaning and re-fueling to be ready for another ascent, at an expenditure of about $12.00.

The point is that fifteen-mile rockets do not yet exist. To build them would need some more research and a few intermediate stages. The one-mile rockets that existed five years ago would have to be reconstructed, then to be enlarged to three-mile rockets, five-mile rockets and finally to fifteen-mile rockets. Fortunately things get much easier as soon as the six-mile altitude is passed.

After all this the question about the capital needed can be answered. To make the first five-mile ascent would require some twelve to fifteen months of research work, to do the rest would need not quite another year. A very careful estimate of the expenses for such work (leaving some margin for possible minor accidents and setbacks) which I made sometime ago resulted in a budget of about $1500.00 a month for the first twelve months and about $300.00 more per month for the second year.

This is not a tremendous amount of money but it is far beyond the possible means of a society. A society that were to spend about $20,000.00 a year on research would have to have between 15,000 and 20,000 paying members, each paying $3.00 membership dues a year. It seems that there are not yet 20,000 people in the world that know enough about rockets and think enough of the importance of rocket research to support such a society for a number of years.

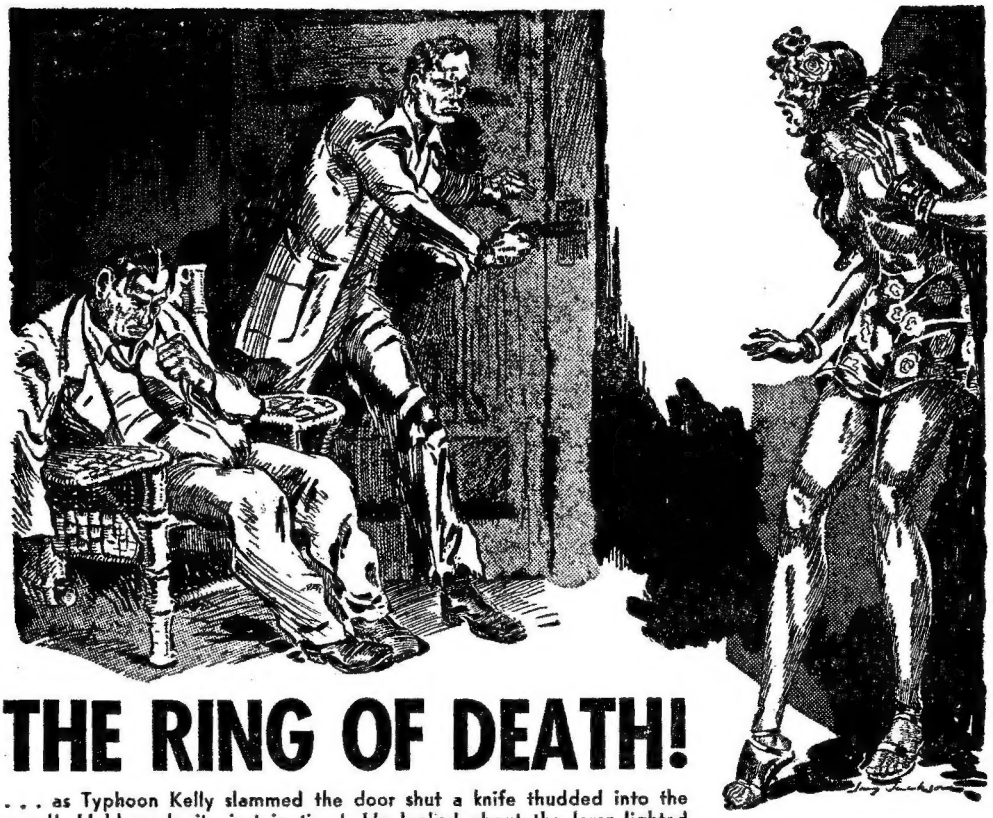
Of course there are a few other possible ways. The most promising of them seemed to be advertising since successful rocket ascents should attract considerable publicity. After all, even a five-mile shot would mean an altitude record for rockets and therefore have some "news value."

Of course, seen from the standpoint of a scientist the ethics of science would benefit more if the money were forthcoming from some private individual who could, incidentally, achieve considerable personal fame as the result of his connection with the work. But as the good old Latin saying "non olet," meaning "(money) doesn't smell" implies, rocket research could digest the "disgrace" of being an advertising medium. If the inventors of printing presses and the wizards of wireless don't mind I fail to see why the masters of rocketry should be more squeamish.

But a good many efforts made in that direction failed to bring results. Not that my word as to the possibilities were doubted—I counted only one exception who doubted that *anything* new could be invented—the results already achieved were proof enough for that. Only a few declared that the sums of money involved were too large. *But none was willing to wait for two years!* I cannot tell why, although I often asked that question. The reasons given were different, probably not all of them truthful. But no matter what the real or pretended reasons were, the fact remained that nobody wanted to wait. Three months, if necessary even five, yes. Fifteen months or a year, no!

And that is what is wrong with rockets.

However, I do not worry about the future. For many years people could have asked: "What's wrong with airplanes?" Before that time they could have asked: "What's wrong with aluminum?" And there was a time when that question applied to automobiles and even to railways. Every one of these inventions and industries experienced a period when one could not tell whether they would live or die. They all lived and proved to have a future. So will rockets!



THE RING OF DEATH!

. . . as Typhoon Kelly slammed the door shut a knife thudded into the wood! He'd made it—just in time! He looked about the lamp-lighted room, a breathless, disheveled figure. An olive-skinned, dark-haired girl stood across the floor, staring at Typhoon with terror-widened eyes . . . gazing in horror at the glistening, snake-coiled ring he was wearing . . . the ring that branded him as an unprincipled killer! A reckless grin quirked the corner of Typhoon's mouth . . . "Quick! Where's the back door, senorita?" he demanded. The girl's fright faded at the sound of Typhoon's voice! She eyed his bronze face and sandy hair with exceeding interest. Her lips parted in a coquettish smile . . . a smile that!! But Typhoon realized that there was no time NOW to yield to the inviting lips of this lovely Apurito native girl! He MUST reach Walter's plantation in time to warn the Englishman of the plot against his life! Here's a thrilling story of the South Seas by HERBERT DAWSON that you simply can't afford to miss! It's just one of the seven great stories packed with exciting adventure, romance and action!

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THE EARTH'S CORE

Is the earth hollow? Many theorists claim that an opening to an inner world exists at the North Pole. They base their theory on unusual speeds made by polar explorers, auroral phenomenon, weird magnetic effects, and other factors. (See page 144 for complete details.)